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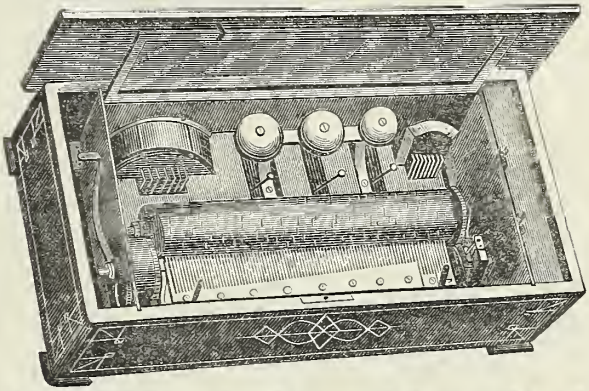
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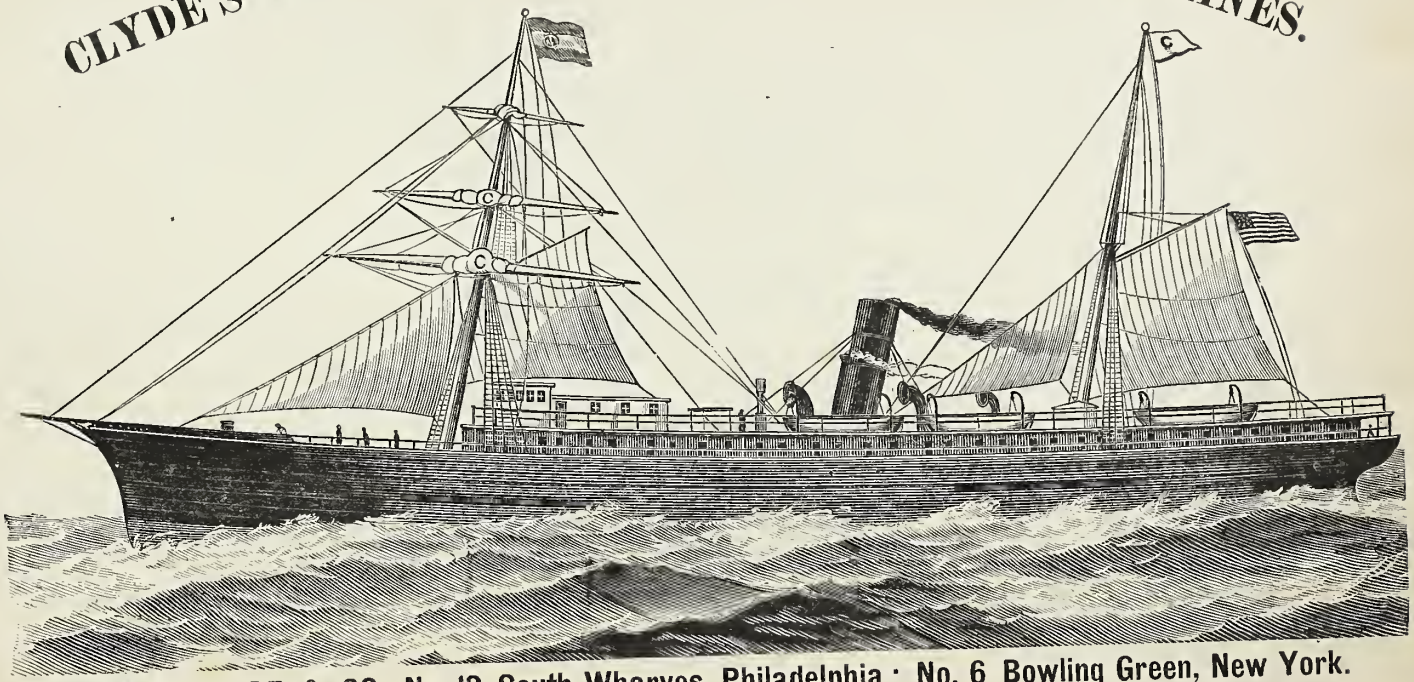
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BURLEY'S

UNITED STATES CENTENNIAL

GAZETTEER AND GUIDE.

1876.

CONTAINING

PLANS OF THE CENTENNIAL BUILDINGS AND GROUNDS OF THE INTERNATIONAL EXHIBITION OF THE UNITED STATES IN 1876, AND THE CLASSIFICATION INTO GROUPS AND DEPARTMENTS OF THE VARIOUS ARTICLES FOR EXHIBITION; HISTORICAL SKETCH OF THE UNITED STATES, GENERAL INFORMATION RELATIVE TO THE TOPOGRAPHY, PHYSICAL GEOGRAPHY, RESOURCES AND PROSPECTS, PRODUCTS OF THE SOIL AND CLIMATE AND THE MINES, AND CENSUS AND STATISTICS OF THE UNITED STATES.

SKETCHES OF PROGRESS DURING THE PAST CENTURY IN ARTS, MANUFACTURES, LITERATURE, EDUCATION, INVENTIONS, RAILROAD FACILITIES AND STEAM NAVIGATION, ETC., AND ARTICLES ON THE PRESS, THE GOVERNMENT AND LAWS, AND OTHER MATTERS OF INTEREST TO BOTH CITIZENS AND VISITORS FROM FOREIGN COUNTRIES. A GENERAL DESCRIPTIVE AND STATISTICAL ACCOUNT OF THE BUSINESS OF THE UNITED STATES AT THE PRESENT TIME; TOGETHER WITH SOME OF THE PRINCIPAL AND PROMINENT BUSINESS HOUSES IN THE VARIOUS BRANCHES OF TRADE AND MANUFACTURE AS HEREIN REPRESENTED.

PROPERLY INDEXED, CLASSIFIED AND ARRANGED UNDER THE PERSONAL SUPERVISION OF THE PROPRIETOR.

CHARLES HOLLAND KIDDER, EDITOR.

A GENERAL ENCYCLOPÆDIA OF THE UNITED STATES.

PHILADELPHIA:
S. W. BURLEY, PROPRIETOR AND PUBLISHER.
1876.

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PREFACE.

HAD the past hundred years been spent in arranging plans for the proper celebration of the One Hundredth Anniversary of American Independence, nothing could have been devised more appropriate for the occasion than a Centennial International Exhibition of Arts, Manufactures and Products of the Soil and Mine. At the beginning of our existence as a nation the development of the resources of this country was scarcely begun; every species of manufacture which would interfere with trade with Great Britain had been restrained as far as possible by the mother-country, and the mineral wealth which abounds in every portion of this favored land was almost entirely unnoticed or unappreciated. When the colonists, numbering less than three millions, who occupied a narrow belt of land on the Atlantic coast, declared themselves "free and independent," their attempts at self-government met, of course, with little favor from the friends of monarchy and of aristocracy, who had no faith in popular sovereignty, and who prophesied the speedy downfall of the infant Republic. Ancient history was raked over for examples of "the incurable evils inherent in every form of republican policy." Free institutions were to be weighed in the balances, and questions which had been warmly debated by writers upon government were now to be settled by "the logic of events." The result of the Revolutionary War and of the War of 1812—that Second War of Independence—the peaceful adoption of a Federal Constitution, the rapid increase in population and territory of the new Republic during the first fifty years of its existence, encouraged the friends of freedom throughout the world; and now, when the One Hundredth Anniversary of American Independence is approaching, how could it be more fitly celebrated than by an International Exhibition, in which Columbia (wellnigh the youngest of nations, although she will then be a centenarian) may invite her sisters to participate? This Exhibition has been planned and will be carried on, not in a spirit of self-adulation, but of honest pride. Pointing to

our works of art, to our own manufactures and to the products of our own soil and mines, it may be said, "See what has been accomplished during a hundred years of independence in the development of the resources of a new country." There can be given a practical, a convincing, a decisive answer to the arguments of those who are opposed to free institutions. In spite of wars, foreign and domestic, in spite of financial "panics" (of which even monarchies and empires have had their share), in spite of many hotly-contested "presidential campaigns," during which each party knew that the country would be ruined by the success of their political opponents, the progress of the United States in everything that constitutes the greatness of a nation has been marvellously rapid. The infant nation has grown to manhood—a manhood so honored and vigorous that it is not afraid to challenge a comparison of its past exploits and its present condition with those of any country on the face of the globe.

Millions of visitors, coming from various portions of this country, as well as from every civilized nation in the world, will doubtless attend the Centennial International Exhibition of 1876. It is the dictate not merely of national pride, but of national self-respect, that we should be prepared to offer, both to the American public and to foreigners, a gazetteer of our country and a guide to our public institutions, our commercial interests, our manufacturing industries and our almost unlimited resources. While it is generally admitted that our country is great, wealthy and prosperous, it is a difficult matter for many even of our most intelligent citizens to answer specific questions as to matters of detail. It is to be regretted that more has not been done to keep our statistical literature up with the times, and to give our youth (too often woefully ignorant of these matters) accurate notions of the resources and prospects of our country. Our resources are so ample, our progress has been so rapid, our prospects are so full of promise, that we need not fear the test of the most accurate of figures, nor dread to have carefully-prepared statements put in the place of the vague generalities which form the staple of oration, lecture and essay. "Truth is stranger than fiction;" and accurate statistics will rather increase than diminish the satisfaction which every true American feels in the growth and progress of his country. Statistics, however, serve a better purpose than to foster national pride. By showing with exactness what has been accomplished in the past, they enable those who attentively study them to make suitable arrangements for the future. In no country are statistics

more carefully collected and preserved than in France. This fact has doubtless had much to do with the careful management which has enabled the French to recover so rapidly after a disastrous foreign war, followed by the terrible Communist insurrection. Statistics are of especial importance to an American. Possessing a country of almost unbounded resources, it is due to our credit as a nation that the nature of those resources should be properly stated. What has been accomplished during the past century in bringing to light the wealth that had lain hidden for ages, and in making the wilderness to blossom as the rose, should also be set forth, as well as what remains to be done. The intelligent foreigner who remembers that one hundred years ago the greater part of this country was a wilderness, when he sees, at the Centennial Exhibition, the vast and varied results of the American energy and inventive genius, and the numerous productions of this favored land, will naturally desire accurate information concerning the intermediate period. He will also ask particular questions which can be answered in no other way than by giving reliable statistics. It is to answer these questions that this work has been attempted. It is a gazetteer of the country, not in the ordinary sense of the word—*i. e.*, a mere geographical dictionary, naming even every insignificant hamlet—but as giving general information upon subjects of importance both to citizens and foreigners, and depends for its interest upon the eagerness felt not only in this country, but in every part of the world, for instruction upon the very topics of which it treats. These topics are dwelt upon as fully as is possible in a condensed work of this nature; and in order to make it a worthy exponent of our national life, the amount of reading matter has been extended from the five hundred and fifty pages promised in the Prospectus to upward of seven hundred pages, including the SYNOPSIS OF CLASSIFICATION OF ARTICLES FOR EXHIBITION, with the details (pages 853–869) and the *Appendix* (pages 871–886), without a proportionate increase in price.

The HISTORICAL SKETCH gives the principal events in the history of the United States, from the first discovery of the mainland by John and Sebastian Cabot to the celebration of the centennial of the battle of Bunker Hill (June 17, 1875). The late civil war, which is sometimes passed over in condensed sketches with a very brief notice, is treated as fully as any of the preceding wars. Impartiality has been aimed at; and if errors have crept in, they are errors each of which is endorsed by at least one leading authority.

The article on PHYSICAL GEOGRAPHY gives general information with reference to the physical features, the climate, rainfall and storms, and the mineral and metallurgical products of this country. A larger amount of space has been given to the section devoted to climate, etc., than is usual in works which promise only *general* information, and an attempt has been made to gather the cream of what has been said of the meteorology of the United States in special treatises upon the science, also to bring up the scientific portions to the standard demanded by the great advance recently made in the knowledge of meteorology. At the same time, technical terms have been as far as possible avoided, or if used they have been explained. To treat such a subject with scientific accuracy, yet with sufficient clearness to be both intelligible and interesting to the average reader, is a difficult task; it is hoped that this fact will be remembered by those who pass judgment upon this portion of the work.

The RESOURCES AND PROSPECTS of the country are dealt with in a special article, which is brief, as the setting forth of those resources in order to give the reader an opportunity to estimate the value of the prospects is the leading object in the composition and publication of this work.

The article on the TOPOGRAPHY OF THE UNITED STATES contains a sketch of every State and Territory in the Union, in which series of sketches the leading topics, "Situation and Extent, Physical Features, Soil and Climate, Agricultural Productions, Manufactures, Minerals and Mining, Commerce and Navigation, Railroads, Public Institutions and Education, Cities and Towns, Population, Government and Laws" and "History" are distinguished by a different type heading the paragraphs. As these topics are treated in the same order for each State, and as the headings in title-letter are so prominent as to be easily caught by the eye, this portion of the work is, so to speak, an index to itself. Every effort has been made to obtain the latest and most trustworthy data; and it can be safely asserted that in no other work which has yet appeared can such a variety of information with reference to each State and Territory in the Union be found.

The article on the CENTENNIAL CITY contains in small space a very valuable account of Philadelphia, in which some facts are noted which will probably be news to not a few even of the residents of the City of Brotherly Love.

In the article on COINS AND CURRENCY a brief sketch is given of the colonial and Revolutionary currencies, and of the first formation of banks in the modern acceptation of the term, together with information relative to the present coinage and banking system of the country.

Thirty pages are devoted to the history, progress and present condition of the COMMERCE AND NAVIGATION OF THE UNITED STATES. The trials of the early colonists and the effect of the Navigation acts are set forth, and considerable space is given to the republication of Sheffield's gloomy prophecies concerning American commerce, for comparison with the brilliant success which proved his lordship incorrect in almost every important statement, and which showed, so to speak, the financial and commercial value of free institutions and the superiority of independence to the one-sided "colonial system." The article concludes with a rapid sketch of the progress made during the present century, and notices of the principal articles of export and import, of shipping and of steam navigation.

The three succeeding essays are upon THE PRESS, AMERICAN LITERATURE and AMERICAN EDUCATION. The marvellous progress made in American journalism and in American authorship during the present century is described as fully as was considered advisable in a work for popular circulation; and in the third article just mentioned the rise of the free-school system, the founding of the principal colleges established before the Revolution and the national land-grants to schools, with statistics of the number of schools in recent census years, receive due attention; also the returns of illiteracy and the relation of education to pauperism and to crime.

The GOVERNMENT AND LAWS of the United States are then described, each cabinet department coming (by the same arrangement of type already mentioned) under the title of its executive head. Statistics of the army are therefore given under the title "Secretary of War," and those of the navy under the title "Secretary of the Navy." Congress, the United States courts, the laws of the United States (so far merely as their sources are concerned) and the naturalization laws are then noticed, and the article concludes with the CONSTITUTION OF THE UNITED STATES, the careful perusal of which needs, or ought to need, no recommendation from us. The DECLARATION OF INDEPENDENCE, with a brief historical introduction, claims the next place, as its omission in a work of this nature would resemble "the play of Hamlet with the part of Hamlet left out."

American Agriculture is the subject of the next extended essay, in the course of which essay the latest attainable statistics of the crops and of the number of the leading domestic animals in this country are worked in after the progress of agriculture in the United States has been traced from the earliest settlements to recent times.

American Manufactures claim a space equal to that given to the foregoing article (34 pages), the early history being traced in a similar manner, the progress made during the several decades since 1810 being followed up by the aid of the census reports, and statistics of leading branches being given with increasing fulness up to 1870. The remaining statistics for the last-named year will be found in the *General Descriptive and Statistical Account of the Business of the United States*, to which we have not yet referred, but in which will be found many interesting personal statistics of the number, nativity and ages (at the time of taking the census) of workers not only in manufacturing branches, but in many other occupations. Those who are engaged in any business which employs more than 20,000 people are given these personal statistics in some portion of this department, and the headings are alphabetically arranged, together with the names of advertisers in those branches, or in a special collection of "Additional Statistics," given immediately before the Advertisers' Index, or in the introduction to the article. For the capitalist and the investor census statistics are worked in of every leading manufacture, giving the number of establishments, of steam-engines and water-wheels, with the aggregate horse-power; of the hands employed, and the amount of the capital, wages, materials and products.

Ten pages have been allotted to the Signal Service Bureau, an organization of great value and efficiency, which has not hitherto received its due meed of commendation in any work similar to the present. It is a service of which this country may well be proud; and a description of its workings is absolutely essential to complete the plan of an attempt to set forth the progress and present condition of the United States, the only nation in the world in which every leading daily newspaper publishes weather prognostications which are in eight cases out of ten correct.

An article on the Railroads of the United States then follows, in which the latest obtainable statistics are given, together with a sketch of the first attempts at using these now indispensable highways of travel and transportation.

American Art is treated in a somewhat popular style for the general reader, not for the art critic—a fact which we hope may be remembered by any of the latter class into whose hands this work may come. This statement will account for the almost entire absence of technical terms, and for their explanation in the few instances where they are used.

American Inventions have been so numerous and so valuable that many volumes of the size of the one now offered to the public could be written upon this subject alone without exhausting the theme. We have therefore noted only a few of the principal ones, and have shown the hopelessness of giving an adequate condensed view of all that has been done in this line by presenting statistics of the number of patents issued each year for thirty-five years, the total number being upward of *one hundred and seventy thousand.*

The information with reference to the United States Centennial International Exhibition, drawn from official sources, with engravings of the various edifices and plans of buildings and the grounds, will serve to render this work of value to all who are interested in the celebration of the One Hundredth Anniversary of American Independence, and who desire to preserve a memorial of such celebration.

The previous International Exhibitions of the World have not been forgotten, brief articles upon them (each accompanied with a cut of the principal building used) being scattered at appropriate intervals through the work. Though these articles are short, it is hoped that sufficient information has been condensed in them to make them worthy of the perusal of all who are interested in such undertakings.

The statistics given throughout this work have been drawn from the most trustworthy sources—from official documents and statements wherever these have been accessible; and the task of combining them in the various general articles so as to be interesting to the average reader has been one of no small difficulty. Too few figures would leave the amount of real information given comparatively meagre. Too many figures would repel many who are unaccustomed to the study of statistical returns. The tabular form has therefore been avoided as far as possible; and where it has been used, the table has been usually given in the Appendix (pages 871–886).

We now come to the pleasing task of acknowledging the assistance which has been rendered by those who have felt an interest in the spread of

statistical information. Mr. Charles Holland Kidder, the editor, has been engaged on the book since the summer of 1874. The work throughout will bear witness to his great carefulness and ability. The preparation of the articles upon the "Topography of the United States" (with few exceptions) and the "Centennial City" was entrusted by him to the Rev. Moseley H. Williams. The advertisers who have given their support, many of whom have been connected with the work since the early part of 1873, and several of whom have greatly assisted by furnishing the latest statistics in their various branches, are worthy of special mention as co-operators in the task which we have just completed. Some of these firms are among the leading houses in the world in their respective lines of business.

Thanks are due to the Hon. Lorin Blodget for kindly giving the use of valuable charts and of public documents which could not elsewhere be obtained; also for suggestions and hints which were of great service in working up several of the articles.

The Hon. Edward Young, Chief of the Bureau of Statistics, forwarded documents and information in advance of the annual reports with a promptness and courtesy which added another to the many proofs of his eminent fitness for the laborious and responsible but inadequately compensated office which he now holds.

Acknowledgment should be made to the stereotyping establishment of Messrs. Westcott & Thomson, and especially to their proof-readers, Messrs. Forbes and Peck, whose constant vigilance has helped to secure accuracy.

The care and responsibility attending the publication of a work like this can be estimated and appreciated only by those having knowledge of the business. The work was planned and begun in the year 1872 with a view to furnishing useful and valuable information concerning this country at a time when all the world shall assemble here to see what has been accomplished during one hundred years of American energy and inventive genius, the publisher feeling that an International Exhibition of the United States would be an occasion of extraordinary interest, which at this date promises to be a more splendid success than was anticipated. The labor of several years is completed with the consciousness that no effort has been spared to make the work worthy in every particular.

S. W. BURLEY.

JANUARY, 1876.

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GENERAL DESCRIPTIVE AND STATISTICAL ACCOUNT OF THE BUSINESS OF THE UNITED STATES.

Introduction.—General statistics for the whole country are procured only once in ten years, at the taking of the United States census. In a few branches later reports are obtainable; but however much the census returns are open to criticism, the statistician is obliged in most cases to fall back upon the figures obtained by the census marshals. The census of 1870 was, as we have said elsewhere (page 612), superior to any of its predecessors, but there were local differences in the methods of taking the returns and of filling up the schedules, which caused considerable variation in the value of the figures obtained. Too often the deputy-marshals, when manufacturers refused to give the desired information, forgot that the census is taken for the benefit of the whole country, and applied the principle of the directory agent, who thinks a man who refuses to give his name is justly punished by being omitted from the list. In Philadelphia, for instance, 2300 establishments, having an average production for the census year of about fifty thousand dollars each (aggregate $115,000,000), were omitted from the first returns. The Superintendent of the Census solicited the fullest aid that could be afforded in making the account complete, and the Hon. Lorin Blodget of Philadelphia was commissioned by the Department of the Interior with full authority to obtain returns under the census laws, and to make a complete revision of the schedules already forwarded, as well as to prepare supplemental returns embracing everything not included in the first canvass. The result of this revision was the discovery of the omission just mentioned, and of the inclusion of about $40,000,000 of railroad earnings among the products of the manufactures of Philadelphia. The committee of the City Councils on the United States census of 1870 published the corrected returns, and say in their report: "It is proper to state that the figures given are the result of Mr. Blodget's calculations, not reviewed by the census office, but believed by both the superintendent and Mr. Blodget to be practically identical, the computations of the census office not being sufficiently advanced to make exact comparisons, but precisely the same returns in duplicate being used for each." The corrected returns for Philadelphia were as follows: Establishments, 8339; steam-

engines, 1877 (horse-power, 49,674); hands employed, 137,876 (men, 92,112; women, 35,478; youths, 10,286); capital, $185,000,357; wages, $61,948,874; materials, $181,261,223; products, $334,852,458. The classification of the various branches was much more minute in the special report than in the census figures for the whole country. Special statistics were given of 548 branches and of a group of unclassified establishments, producing an aggregate of $1,666,564. The regular census report divided the manufactures of the country into only 390 classes, several minor branches being frequently grouped together under one general heading. In giving special statistics, therefore, for the several businesses represented we have been obliged occasionally to group together several branches, or rather to place under one branch or general heading the statistics as found in the census, then to refer under the other branches included in the group to the title under which the combined statistics of the group will be found. In many cases, on account of the minute subdivision in Mr. Blodget's report, it is possible to give special statistics for Philadelphia in branches which were omitted or included under a general heading in the regular census report. The manufactures of Philadelphia in 1875 are estimated by Mr. Blodget at $500,000,000. The census return for the manufactures of Alleghany county, Pa., was also about $100,000,000 short, as it gives a total of only $88,789,414, while the manufacturers paid tax that year on an aggregate product of about $190,000,000. Personal statistics have also been given sometimes in lieu of, and sometimes in connection with, returns of production. These statistics have been obtained from the "Table of Occupations" in the census report. Though this table is in some respects incomplete, the adult males of the country are as fully accounted for as could be expected. Of 10,429,150 between the ages of 16 and 59, inclusive, 9,486,734 were assigned gainful occupations. The great discrepancies which will be noticed between the number of "hands employed" in the factories producing or working over certain articles and the number returned in the Table of Occupations as working in these branches can be easily understood when it is remembered that the establishments mentioned in the "Table of Manufactures" are mainly those conducted on the factory principle, that the number of "hands employed" is the average number employed, and that in this number both unskilled laborers and skilled workmen were frequently returned (a practice which tended, of course, to increase the number credited to this branch), while, on the other hand, those not in factories, or who were not directly engaged in the *manufacturing* department of their business, were excluded by the plan of the "Table of Manufactures," but included in the returns of the "Table of Occupations." The nature of these personal statistics can be seen by examining the following return for persons "10 years old and over" engaged in all occupations: Number, 12,505,923

(males, 10,669,635; females, 1,836,288); ages, 10 to 15, 739,164; 16 to 59, 11,081,517; 60 and over, 685,242; born in the United States, 9,802,-034; Germany, 836,418; Ireland, 947,234; England and Wales, 301,795; Scotland, 71,922; British America, 189,318; Sweden, Norway and Denmark, 109,658; France, 58,200; China and Japan, 46,274. According to the leading subdivision, these people are classed as engaged in agriculture, in "professional and personal services," in "trade and transportation" and in "manufactures and mining," with the following personal statistics: 1. *Persons engaged in Agriculture*, 5,922,471 (males, 5,525,503; females, 396,968); ages, 10 to 15, 499,558; 16 to 59, 4,959,890; 60 and over, 463,-023; born in the United States, 5,303,363; Germany, 224,531; Ireland, 138,425; England and Wales, 77,173; Scotland, 17,850; British America, 48,288; Sweden, Norway and Denmark, 50,480; France, 16,472; China and Japan, 2861. 2. *Persons engaged in Professional and Personal Services*, 2,684,793 (males, 1,618,121; females, 1,066,672); ages, 10 to 15, 149,491; 16 to 59, 2,428,147; 60 and over, 107,155; born in the United States, 1,858,178; Germany, 191,212; Ireland, 425,087; England and Wales, 49,905; Scotland, 12,672; British America, 48,014; Sweden, Norway and Denmark, 29,333; France, 13,102; China and Japan, 19,471. 3. *Persons engaged in Trade and Transportation*, 1,191,238 (males, 1,172,-540; females, 18,698); ages, 10 to 15, 14,472; 16 to 59, 1,149,042; 60 and over, 27,724; born in the United States, 862,653; Germany, 112,435; Ireland, 119,094; England and Wales, 32,086; Scotland, 8440; British America, 16,565; Sweden, Norway and Denmark, 9564; France, 8654; China and Japan, 2250. 4. *Persons engaged in Manufactures and Mining*, 2,707,421 (males, 2,353,471; females, 353,950); ages, 10 to 15, 75,643; 16 to 59, 2,544,438; 60 and over, 87,340; born in the United States, 1,777,-840; Germany, 308,240; Ireland, 264,628; England and Wales, 142,631; Scotland, 32,960; British America, 76,451; Sweden, Norway and Denmark, 20,281; France, 19,972; China and Japan, 21,962. The two leading occupations included in the second class just given furnished employment to nearly four-fifths (2,007,400) of the whole number engaged in personal and professional services, the returns being as follows: *Domestic Servants*, 975,734 (males, 108,380; females, 867,354); ages, 10 to 15, 109,-503; 16 to 59, 838,400; 60 and over, 27,822; born in the United States, 729,180; Germany, 42,866; Ireland, 145,956; England and Wales, 12,531; Scotland, 3399; British America, 14,878; Sweden, Norway and Denmark, 11,287; France, 2874; China and Japan, 5420. *Laborers (not specified)*, 1,031,666 (males, 1,010,345; females, 21,321); ages, 10 to 15, 32,159; 16 to 59, 948,404; 60 and over, 51,103; born in the United States, 602,075; Germany, 96,432; Ireland, 229,199; England and Wales, 21,-932; Scotland, 5723; British America, 25,394; Sweden, Norway and Denmark, 15,459; France, 4832; China and Japan, 9436. The largest

single entry under the heading "persons engaged in trade and transportation" was the following: *Clerks in Stores*, 222,504 (males, 216,310; females, 6194); ages, 10 to 15, 7085; 16 to 59, 213,588; 60 and over, 1831; born in the United States, 181,478; Germany, 16,886; Ireland, 9532; England and Wales, 5341; Scotland, 1537; British America, 2732; Sweden, Norway and Denmark, 1044; France, 1166; China and Japan, 207. There was also the following separate return: *Bookkeepers and Accountants in Stores*, 31,177 (males, 30,884; females, 293); ages, 10 to 15, 63; 16 to 59, 30,563; 60 and over, 551; born in the United States, 24,494; Germany, 2250; Ireland, 1524; England and Wales, 1259; Scotland, 490; British America, 447; Sweden, Norway and Denmark, 74; France, 186; China and Japan, 38. In the class engaged in manufactures and mining the number of "manufacturers" returned as such (meaning, of course, proprietors of establishments) was 42,877 (males, 42,687; females, 190); 16 to 59, 40,898; 60 and over, 1979; born in the United States, 31,962; Germany, 4896; Ireland, 1817; England and Wales, 2189; Scotland, 447; British America, 506; Sweden, Norway and Denmark, 151; France, 308; China and Japan, 22.

The question of the nativity of the inhabitants of this country (how many are native- and how many are foreign-born, with the nationalities of the latter) is so interesting that we feel that no apology is necessary for giving some facts from the census with reference to this important matter. The total foreign-born population of the United States in 1870 was 5,567,229, while the native population was 32,991,142. The foreign-born population in 1850 was 2,244,602, or 9.68 per cent. of the total population. In 1860 it was 4,138,697, or 13.16 per cent. of the total population; and in 1870 it was 14.44 per cent. of the total population. This increase in the proportion indicates a greater increase in the foreign-born population than in the native, and the exact figures are as follows: Increase of native population between 1850 and 1860, 31.80 per cent.; increase of foreign-born population during the same period, 88.84 per cent. Increase of native population between 1860 and 1870, 20.83 per cent.; increase of foreign-born population during the same period, 34.50 per cent. The leading States in foreign-born population in 1870 were New York (1,138,353), Pennsylvania (545,309), Illinois (515,198), Ohio (372,493), Wisconsin (364,499) and Massachusetts (353,319). The following statement from the census report gives—

The Foreign-born Population, distributed according to Place of Birth among the principal Foreign Countries.

Austria	30,508	China	63,042
Belgium	12,553	Denmark	30,107
Bohemia	40,289	France	116,402
British America	493,464	Germany	1,690,533

Great Britain (not specified)	4,122	Norway	114,246
England	550,922	Poland	14,436
Ireland	1,855,827	Portugal	4,542
Scotland	140,835	Russia	4,644
Wales	74,533	Holland	46,802
Hungary	3,737	Spain	3,764
Italy	17,157	Sweden	97,332
Luxemburg	5,802	Switzerland	75,153
Mexico	42,435	West Indies	11,570

The German population came from so many different States that a special table was prepared in the census office of the

German Population distributed according to Place of Birth among the principal States and Free Cities of Germany.

Baden	153,366	Nassau	8,962
Bavaria	204,119	Oldenburg	10,286
Brunswick	4,876	Prussia (not specified)	596,782
Hamburg	7,829	Saxony	45,256
Hanover	104,365	Weimar	1,628
Hessen	131,524	Würtemberg	127,959
Lübeck	279	Germany (not specified)	253,632
Mecklenburg	39,670		

The leading States in *German* population were New York (316,902), Illinois (203,758), North Carolina (182,897), Wisconsin (162,314) and Pennsylvania (160,146), these five States containing 1,026,017 (60.75 per cent.) or more than three-fifths of the total German population. There were 151,216 Germans in the city of New York, 59,040 in St. Louis, 52,318 in Chicago, 50,746 in Philadelphia and 49,448 in Cincinnati. The leading States in *Irish* population were New York (528,806), Pennsylvania (235,798), Massachusetts (216,120) and Illinois (120,162), making for these four States 1,100,886 (59.32 per cent.), or nearly three-fifths of the total number of natives of Ireland in this country. The leading States in *English* population were New York (110,070), Pennsylvania (69,665), Illinois (53,871), Ohio (36,561), Michigan (35,051) and Massachusetts (34,099), making for these six States 339,318 (61.61 per cent.), or more than three-fifths of the total English population in this country. The leading States in *Scotch* population were New York (27,282), Pennsylvania (16,846), Illinois (15,737), Massachusetts (9003) and Michigan (8552), making for these five States 77,420 (55 per cent.), or more than one-half of the total Scotch population in this country. The leading States in *Welsh* population were Pennsylvania (27,282), Ohio (12,939), New York (7857) and Wisconsin (6550), making for these four States 54,628 (73.33 per cent.), or nearly three-fourths of the total Welsh population in this country. There were 234,594 "natives of Great Britain and Ireland" in the city

of New York, 123,408 in Philadelphia, 97,475 in Brooklyn, 64,787 in Boston, 54,800 in Chicago and 38,961 in St. Louis. The leading States in *British-American* population were Michigan (89,590), New York (79,042), Massachusetts (70,055), Illinois (32,550), Vermont (28,544) and Maine (26,788), making for these six States 326,467 (66.15 per cent.), or very nearly two-thirds of the British-American population in this country. The leading States in *Swedish* population were Illinois (29,979), Minnesota (20,987) and Iowa (10,796), making for these three States 61,752 (63.46 per cent.), or more than three-fifths of the total Swedish population in this country. The leading States in *Norwegian* population were Wisconsin (40,046), Minnesota (35,940), Iowa (17,556) and Illinois (11,880), making for these four States 105,422 (92.31 per cent.), or more than nine-tenths of the Norwegian population in this country. The leading States in *French* population were New York (22,302), Ohio (12,781), Louisiana (12,341), Illinois (10,911), Pennsylvania (8695) and California (8068), making for these six States 75,098 (64.52 per cent.), or nearly two-thirds of the total French population in this country. There were 8845 natives of France in New Orleans, 8265 in New York, 3547 in San Francisco, 2788 in St. Louis and 2479 in Philadelphia. The returns of the native and foreign-born population of all nationalities for the principal cities were as follows: New York city, native, 523,198; foreign-born, 419,094; Philadelphia, native, 490,398; foreign-born, 183,624; Brooklyn, native, 251,381; foreign-born, 144,718; St. Louis, native, 198,615; foreign-born, 112,249; Chicago, native, 154,420; foreign-born, 144,557; Baltimore, native, 210,870; foreign-born, 56,484; Boston, native, 162,540; foreign-born, 87,986; Cincinnati, native, 136,627; foreign-born, 79,612; New Orleans, native, 142,943; foreign-born, 48,475; San Francisco, native, 75,754; foreign-born, 73,719; Buffalo, native, 71,477; foreign-born, 46,237; Washington, native, 95,442; foreign-born, 13,757; Newark, native, 69,175; foreign-born, 35,884. Interesting statistics were also collected of the population (whether native or foreign-born) of foreign parentage, the following being the figures: Having one or both parents foreign, 10,892,015; leading States, New York (2,225,627), Pennsylvania (1,151,208), Illinois (986,035), Ohio (849,815), Wisconsin (717,832) and Massachusetts (626,211), making for these six States 6,556,728 (60.20 per cent.), or more than three-fifths of the total number; having foreign father and native mother, 786,388; having foreign mother and native father, 370,782; having both parents foreign, 9,734,845; leading States, New York (2,043,112), Pennsylvania (991,851), Illinois (890,823), Ohio (731,345), Wisconsin (670,759) and Massachusetts (590,352), making for these six States 4,918,242 (50.52 per cent.), or more than one-half of the total number.

Additional Statistics from the Table of Occupations and the Table of Manufactures.

Though a promise was given of a statistical and descriptive account of those departments only which are represented in the Advertisers' Index, various collateral branches have been put in under the proper headings in order to give as full a description as possible of the business of the country. The following statistics, taken from the two tables upon which we have been obliged to place our main reliance, will be of interest to the reader, and will tend to make this portion of the work still more complete. Two of the three so-called learned professions are given under Electropathic Physicians and Patent Lawyers. The number of *Clergymen* was 43,874 (males, 43,807; females, 67); ages, 16 to 59, 39,489; 60 and over, 4385; born in the United States, 35,668; Germany, 2745; Ireland, 1740; England and Wales, 1566; Scotland, 318; British America, 485; Sweden, Norway and Denmark, 198; France, 416; China and Japan, 6. The longevity of clergymen, as shown by this table, is specially noteworthy, the number of those who were 60 and over lacking only three of being ten per cent. (4388) of the total.

Actors.

Number, 2053 (males, 1361; females, 692); ages, 10 to 15, 25; 16 to 59; 2002; 60 and over, 26; born in the United States, 1328; Germany, 153; Ireland, 99; England and Wales, 234; Scotland, 11; British America, 35; France, 31; China and Japan, 95.

Agricultural Laborers.

Number, 2,885,996 (males, 2,512,664; females, 373,332); ages, 10 to 15, 499,474; 16 to 59, 2,287,708; 60 and over, 98,814; born in the United States, 2,700,268; Germany, 57,261; Ireland, 43,398; England and Wales, 19,122; Scotland, 3798; British America, 20,589; Sweden, Norway and Denmark, 19,917; France, 4026; China and Japan, 1766.

Auctioneers.

Number, 2266 (males, 2254; females, 12); ages, 16 to 59, 2155; 60 and over, 111; born in the United States, 1907; Germany, 97; Ireland, 96; England and Wales, 87; Scotland, 17; British America, 19; Sweden, Norway and Denmark, 3; France, 18.

Bags (paper).

Establishments, 39; steam-engines, 17 (horse-power, 321); water-wheels, 6 (horse-power, 127); hands employed, 444 (men, 205; women, 206; youths, 33); capital, $473,100; wages, $134,932; materials, $1,053,483; products, $1,483,963.

Bags (other than paper).

Establishments, 39; steam-engines, 14 (horse-power, 239); water-wheels, 4 (horse-power, 125); hands employed, 1097 (men, 486: women, 502; youths, 109); capital, $1,290,500; wages, $452,517; materials, $3,827,678, produets, $8,261,679.

Bankers and Brokers of Money and Stocks.

Number, 10,631 (males, 10,616; females, 15); ages, 10 to 15, 3; 16 to 59, 10,137; 60 and over, 491; born in the United States, 9004; Germany, 684; Ireland, 258; England and Wales, 311; Scotland, 90; British Ameriea, 74; Sweden, Norway and Denmark, 15; Franee, 85; China or Japan, 1.

Barkeepers.

Number, 14,362 (males, 14,292; females, 70); ages, 10 to 15, 159; 16 to 59, 14,043; 60 and over, 160; born in the United States, 7330; Germany, 3508; Ireland, 1824; England and Wales, 444; Seotland, 81; British Ameriea, 221; Sweden, Norway and Denmark, 89; Franee, 341; China and Japan, 4.

Boarding- and Lodging-House Keepers.

Number, 12,785 (males, 5725; females, 7060); ages, 16 to 59, 11,772; 60 and over, 1013; born in the United States, 7496; Germany, 1336; Ireland, 2173; England and Wales, 572; Seotland, 108; British America, 349; Sweden, Norway and Denmark, 243; Franee, 153; China and Japan, 112.

Brewers and Maltsters.

Number, 11,246 (males, 11,238; females, 8); ages, 10 to 15, 45; 16 to 59, 11,037; 60 and over, 164; born in the United States, 2715; Germany, 6780; Ireland, 520; England and Wales, 389; Seotland, 73; British America, 92; Sweden, Norway and Denmark, 44; Franee, 271; China and Japan, 5.

Brooms and Whisk Brushes.

Establishments, 35; steam-engines, 6 (horse-power, 178); water-wheels, 6 (horse-power, 118); hands employed, 5206 (men, 3056; women, 992; youths, 1158); eapital, $2,015,602; wages, $1,268,875; materials, $3,672,837; products, $6,622,285.

Carpet-Makers.

Number, 15,669 (males, 10,292; females, 5377); ages, 10 to 15, 522; 16 to 59, 13,628; 60 and over, 1519; born in the United States, 8518; Germany, 1725; Ireland, 2706; England and Wales, 1524; Seotland, 561; British Ameriea, 362; Sweden, Norway and Denmark, 49; Franee, 70; China or Japan, 1.

Clerks and Bookkeepers in Banks.

Number, 7103 (males, 7081; females, 22); ages, 10 to 15, 25; 16 to 59, 6994; 60 and over, 84; born in the United States, 6547; Germany, 198; Ireland, 91; England and Wales, 104; Scotland, 30; British America, 30; Sweden, Norway and Denmark, 28; France, 37.

Clerks and Bookkeepers in Insurance Offices.

Number, 1568 (males, 1562; females, 6); ages, 10 to 15, 13; 16 to 59, 1527; 60 and over, 28; born in the United States, 1437; Germany, 42; Ireland, 24; England and Wales, 34; Scotland, 5; British America, 12; Sweden, Norway and Denmark, 4; France, 4.

Coal-Oil (refined).

Establishments, 170; steam-engines, 198 (horse-power, 4214); hands employed, 1870 (men, 1834; woman, 1; youths, 35); capital, $6,770,383; wages, $1,184,559; materials, $21,450,189; products, $26,942,287.

Cotton-Mill Operatives.

Number, 111,606 (males, 47,208; females, 64,398); ages, 10 to 15, 19,946; 16 to 59, 88,840; 60 and over, 2820; born in the United States, 71,547; Germany, 1214; Ireland, 18,713; England and Wales, 10,091; Scotland, 1714; British America, 7683; Sweden, Norway and Denmark, 35; France, 110; China and Japan, 3.

Daguerreotypers and Photographers.

Number, 7558 (males, 7330; females, 228); ages, 10 to 15, 32; 16 to 59, 7429; 60 and over, 97; born in the United States, 6327; Germany, 410; Ireland, 146; England and Wales, 287; Scotland, 42; British America, 165; Sweden, Norway and Denmark, 54; France, 50; China and Japan, 5.

Employés of Insurance Companies (not clerks).

Number, 11,611 (males, 11,587; females, 24); ages, 10 to 15, 2; 16 to 59, 11,157; 60 and over, 452; born in the United States, 10,218; Germany, 625; Ireland, 205; England and Wales, 238; Scotland, 55; British America, 126; Sweden, Norway and Denmark, 17; France, 36.

Employés of Telegraph Companies (not clerks).

Number, 8316 (males, 7961; females, 355); ages, 10 to 15, 260; 16 to 59, 8027; 60 and over, 29; born in the United States, 7577; Germany, 98; Ireland, 226; England and Wales, 164; Scotland, 31; British America, 159; Sweden, Norway and Denmark, 21; France, 10.

Farmers and Planters.

Number, 2,977,711 (males, 2,955,030; females, 22,681); ages, 16 to 59, 2,618,000; 60 and over, 359,711; born in the United States, 2,569,023; Germany, 159,114; Ireland, 88,923; England and Wales, 54,880; Scotland, 13,050; British America, 27,171; Sweden, Norway and Denmark, 30,259; France, 11,459; China and Japan, 366.

Fishermen and Oystermen.

Number, 27,106 (males, 27,071; females, 35); ages, 10 to 15, 827; 16 to 59, 24,882; 60 and over, 1397; born in the United States, 21,551; Germany, 564; Ireland, 872; England and Wales, 443; Scotland, 95; British America, 1573; Sweden, Norway and Denmark, 345; France, 165; China and Japan, 310.

Gardeners and Nurserymen.

Number, 31,435 (males, 31,202; females, 233); ages, 16 to 59, 27,748; 60 and over, 3687; born in the United States, 13,845; Germany, 6259; Ireland, 5079; England and Wales, 2378; Scotland, 756; British America, 318; Sweden, Norway and Denmark, 178; France, 679; China and Japan, 676.

Hucksters.

Number, 17,362 (males, 16,147; females, 1215); ages, 10 to 15, 157; 16 to 59, 16,297; 60 and over, 908; born in the United States, 10,909; Germany, 2296; Ireland, 2214; England and Wales, 455; Scotland, 71; British America, 138; Sweden, Norway and Denmark, 41; France, 295; China and Japan, 55.

Iron Foundry Operatives.

Number, 34,235; ages, 10 to 15, 646; 16 to 59, 33,122; 60 and over, 477; born in the United States, 18,538; Germany, 4409; Ireland, 6826; England and Wales, 2196; Scotland, 732; British America, 742; Sweden, Norway and Denmark, 184; France, 254.

Iron Furnace Operatives.

Number, 7452; ages, 10 to 15, 158; 16 to 59, 7068; 60 and over, 236; born in the United States, 4294; Germany, 562; Ireland, 1780; England and Wales, 612; Scotland, 48; British America, 61; Sweden, Norway and Denmark, 14; France, 43.

Iron and Steel Rolling-Mill Operatives.

Number, 17,249; ages, 10 to 15, 566; 16 to 59, 16,430; 60 and over, 253; born in the United States, 8703; Germany, 1793; Ireland, 3451; England and Wales, 2717; Scotland, 155; British America, 138; Sweden, Norway and Denmark, 46; France, 75; China or Japan, 2.

Iron and Steel Works Operatives.

Number, 22,141 (males, 21,646; females, 495); ages, 10 to 15, 864; 16 to 59, 20,931; 60 and over, 346; born in the United States, 14,278; Germany, 1410; Ireland, 3775; England and Wales, 1878; Scotland, 222; British America, 291; Sweden, Norway and Denmark, 22; France, 100.

Journalists.

Number, 5286 (males, 5251; females, 35); ages, 16 to 59, 5180; 60 and over, 106; born in the United States, 4411; Germany, 314; Ireland, 174; England and Wales, 183; Scotland, 55; British America, 54; Sweden, Norway and Denmark, 20; France, 34; China or Japan, 1.

Lumbermen and Raftsmen.

Number, 17,752; ages, 10 to 15, 48; 16 to 59, 17,357; 60 and over, 347; born in the United States, 13,550; Germany, 443; Ireland, 567; England and Wales, 263; Scotland, 171; British America, 1908; Sweden, Norway and Denmark, 356; France, 47; China and Japan, 111.

Mechanics (branch not specified).

Number, 16,514 (males, 13,955; females, 2559); ages, 10 to 15, 367; 16 to 59, 15,514; 60 and over, 663; born in the United States, 11,865; Germany, 1870; Ireland, 1119; England and Wales, 777; Scotland, 190; British America, 264; Sweden, Norway and Denmark, 55; France, 166; China or Japan, 1.

Mill and Factory Operatives (not specified).

Number, 41,619 (males, 33,509; females, 8110); ages, 10 to 15, 3720; 16 to 59, 37,233; 60 and over, 666; born in the United States, 29,392; Germany, 3099; Ireland, 3852; England and Wales, 1805; Scotland, 496; British America, 1597; Sweden, Norway and Denmark, 343; France, 154; China and Japan, 203.

Millers.

Number, 41,582 (males, 41,343; females, 239); ages, 10 to 15, 122; 16 to 59, 39,125; 60 and over, 2335; born in the United States, 35,290; Germany, 2614; Ireland, 867; England and Wales, 1434; Scotland, 323; British America, 431; Sweden, Norway and Denmark, 133; France, 273; China and Japan, 11.

Musicians (professional).

Number, 6519 (males, 6346; females, 173); ages, 10 to 15, 46; 16 to 59, 6295; 60 and over, 178; born in the United States, 2663; Germany, 2401; Ireland, 351; England and Wales, 273; Scotland, 35; British America, 66; Sweden, Norway and Denmark, 50; France, 131; China and Japan, 36.

Nurses.

Number, 10,976 (males, 806; females, 10,170); ages, 16 to 59, 9636; 60 and over, 1340; born in the United States, 8325; Germany, 458; Ireland, 1346; England and Wales, 387; Scotland, 92; British America, 170; Sweden, Norway and Denmark, 71; France, 54.

Officials of Government.

Number, 44,743 (males, 44,329; females, 414); ages, 16 to 59, 42,058; 60 and over, 2685; born in the United States, 38,461; Germany, 1800; Ireland, 2534; England and Wales, 867; Scotland, 226; British America, 302; Sweden, Norway and Denmark, 116; France, 164; China and Japan, 4.

Peddlers.

Number, 16,975 (males, 16,697; females, 278); ages, 10 to 15, 187; 16 to 59, 16,090; 60 and over, 698; born in the United States, 7072; Germany, 4799; Ireland, 2180; England and Wales, 571; Scotland, 108; British America, 211; Sweden, Norway and Denmark, 78; France, 319; China and Japan, 152.

Porters in Stores and Warehouses.

Number, 16,631; ages, 10 to 15, 286; 16 to 59, 15,964; 60 and over, 381; born in the United States, 8418; Germany, 2888; Ireland, 4100; England and Wales, 377; Scotland, 122; British America, 120; Sweden, Norway and Denmark, 79; France, 164; China and Japan, 83.

Produce Dealers.

Number, 11,809 (males, 11,746; females, 63); ages, 16 to 59, 11,468; 60 and over, 341; born in the United States, 9171; Germany, 1056; Ireland, 643; England and Wales, 356; Scotland, 78; British America, 155; Sweden, Norway and Denmark, 29; France, 69; China and Japan, 27.

Real Estate (Traders and Dealers in).

Number, 8933 (males, 8919; females, 14); ages, 16 to 59, 8446; 60 and over, 488; born in the United States, 7391; Germany, 351; Ireland, 425; England and Wales, 269; Scotland, 63; British America, 77; Sweden, Norway and Denmark, 15; France, 63; China and Japan, 2.

Salesmen and Saleswomen.

Number, 14,203 (males, 11,428; females, 2775); ages, 10 to 15, 365; 16 to 59, 13,692; 60 and over, 146; born in the United States, 11,306; Germany, 973; Ireland, 1025; England and Wales, 374; Scotland, 158; British America, 184; Sweden, Norway and Denmark, 10; France, 55.

Ship-Carpenters.

Number, 15,900; ages, 10 to 15, 10; 16 to 59, 15,102; 60 and over, 788; born in the United States, 11,720; Germany, 644; Ireland, 1176; England and Wales, 545; Scotland, 295; British America, 1072; Sweden, Norway and Denmark, 252; France, 74; China or Japan, 1.

Soldiers (United States Army).

Number, 22,081; ages, 16 to 59, 22,059; 60 and over, 22; born in the United States, 11,478; Germany, 2997; Ireland, 4964; England and Wales, 986; Scotland, 328; British America, 392; Sweden, Norway and Denmark, 171; France, 210.

Stock Raisers.

Number, 6588 (males, 6558; females, 30); ages, 16 to 59, 6388; 60 and over, 200; born in the United States, 5321; Germany, 214; Ireland, 222; England and Wales, 178; Scotland, 51; British America, 75; Sweden, Norway and Denmark, 26; France, 44.

Teachers of Music.

Number, 9491 (males, 3911; females, 5580); ages, 10 to 15, 19; 16 to 59, 9247; 60 and over, 225; born in the United States, 7246; Germany, 1231; Ireland, 162; England and Wales, 339; Scotland, 36; British America, 125; Sweden, Norway and Denmark, 38; France, 106.

Teachers (not specified).

Number, 126,822 (males, 42,775; females, 84,047); ages, 10 to 15, 336; 16 to 59, 124,030; 60 and over, 2456; born in the United States, 116,606; Germany, 3215; Ireland, 2568; England and Wales, 1290; Scotland, 390; British America, 1156; Sweden, Norway and Denmark, 198; France, 696; China and Japan, 6.

Tobacco Factory Operators.

Number, 11,985 (males, 9695; females, 2290); ages, 10 to 15, 2496; 16 to 59, 9369; 60 and over, 170; born in the United States, 10,266; Germany, 936; Ireland, 451; England and Wales, 96; Scotland, 10; British America, 24; Sweden, Norway and Denmark, 6; France, 36; China or Japan, 1.

Wheelwrighting.

Establishments, 3613; steam-engines, 32 (horse-power, 554); water-wheels, 75 (horse-power, 983); hands employed, 6989 (men, 6915; women, 11; youths, 63); capital, $2,839,316; wages, $1,353,474; materials, $1,907,418; products, $5,846,943.

Wheelwrights.

Number, 20,942; ages, 10 to 15, 15; 16 to 59, 19,153; 60 and over, 1774; born in the United States, 14,477; Germany, 1416; Ireland, 652; England and Wales, 419; British America, 529; Sweden, Norway and Denmark, 65; France, 130; China and Japan, 3.

Wood-choppers.

Number, 8338; ages, 10 to 15, 130; 16 to 59, 7931; 60 and over, 277; born in the United States, 6201; Germany, 322; Ireland, 196; England and Wales, 100; Scotland, 30; British America, 735; Sweden, Norway and Denmark, 88; France, 81; China and Japan, 419.

Woollen-Mill Operatives.

Number, 58,836 (males, 36,060; females, 22,776); ages, 10 to 15, 7427; 16 to 59, 50,212; 60 and over, 1197; born in the United States, 32,083; Germany, 2664; Ireland, 12,231; England and Wales, 6609; Scotland, 1306; British America, 3175; Sweden, Norway and Denmark, 69; France, 138; China and Japan, 97.

☞ *Too Late for Classification.* ☜

Distillers.

(For statistics of DISTILLED LIQUORS see under WINES AND LIQUORS, p. 89.)

The Hannis Distilling Company, 218 and 220 South Front street, Philadelphia, see page 891.

Distillers and Rectifiers.

Number, 2874 (males, 2868; females, 6); ages, 16 to 59, 2799; 60 and over, 75; born in the United States, 1610; Germany, 692; Ireland, 334; England and Wales, 79; Scotland, 11; British America, 23; Sweden, Norway and Denmark, 7; France, 49.

Wines and Liquors.

(For statistics see under WINES AND LIQUORS, page 89.)

The Hannis Distilling Company, 218 and 220 South Front street, Philadelphia, see page 891.

Tobias & Company, Joseph F., 241 Chestnut street, Philadelphia, see page 892.

ADVERTISERS' CLASSIFIED INDEX,

WITH SPECIAL STATISTICS.

NOTE.—The location of the houses mentioned under the various headings throughout this Index, where only the address of the street and number is given (except where it is otherwise stated), is in *Philadelphia*.

☞ The figures immediately following the addresses of the advertisers indicate the pages on which their cards appear.

Agricultural Implements.

(For statistics see AMERICAN MANUFACTURES, page 614.)

Boyer Wm. L. & Brother, 2101 Germantown avenue, 749.
Buist Robert, Jr., 922 and 924 Market street, 799.
Dreer Henry A., 714 Chestnut street, 721.
Jones Wm. H., 1621 Market street, 844.
Landreth David & Son, 23 South Sixth street, 841 and 842.

Alcohols, etc.

Locke Z. & Co., 1126 Market street, 775.

Alcohol.—Establishments in 1860, 22; hands employed, 208; capital, $897,000; wages, $82,068; materials, $3,567,062; products, $4,168,360. No special statistics for the whole country were given in the census of 1870, but the figures for Philadelphia were as follows: *Alcohol (redistilled).*—Establishments, 3; steam engines, 3; horse-power, 80; hands employed, 20; wages, $13,236; materials, $515,000; products, $640,250.

Aquarium and Vivarium Manufacturers.

Seal & Stephens, 622 Arch street, 780.
Taxis E. W., 60 North Sixth street, 730.

Artificial Limbs.

Palmer B. Frank, M. D., 1609 Chestnut street, 784.

During the civil war there were 12,000 soldiers in the Northern army, and 10,000 in the Southern army, who lost limbs and survived, and 10,000 artificial limbs were put on within one year after the end of the war. The United States government paid to the Federal soldiers (and pays every five years to the survivors) $50 for an arm and $75 for a leg, giving the pen-

sioner the option of receiving either the limb or the money. The number now put on is very materially reduced, and the census figures are as follows: Establishments, 24; steam engine, 1 (horse-power, 10); hands employed, 78 (70 men, 1 woman, 7 youths); capital, $122,300; wages, $36,079; materials, $59,894; products, $166,416.

Artists.

Winner W. E., 146 South Eighth street, 827.

There were 2948 artists (not specified) in the United States in 1870. Males, 2663; females, 285. Ages, 10 to 15 years, 7; 16 to 59, 2843; 60 and over, 98. Born in the United States, 2029; Germany, 420; Ireland, 81; England and Wales, 176; Scotland, 24; British America, 48; Sweden, Norway and Denmark, 14; France, 68; China and Japan, 2.

The following are the statistics of those specified (as painters or sculptors): *Painters.*—775 (males, 717; females, 58); ages, 16 to 59, 755; 60 and over, 20; born in the United States, 529; Germany, 114; Ireland, 15; England and Wales, 52; Scotland, 5; British America, 13; Sweden, Norway and Denmark, 12; France, 15. *Sculptors.*—250 (males, 246; females, 4); ages, 16 to 59, 238; 60 and over, 12; born in the United States, 130; Germany, 47; Ireland, 15; England and Wales, 10; Scotland, 4; Sweden, Norway and Denmark, 2; France, 15.

Artists' Materials.

Janentzky & Co., 1125 Chestnut street, 739.

Winner & Co., 146 South Eighth street, 827.

Establishments, 8; steam-engines, 4 (combined horse-power, 40); hands employed, 50 (men, 38; women, 3; youths, 9); aggregate capital, $43,800; annual cost of labor, $20,062, and of materials, $21,680; value of artists' materials produced in 1870, $94,150.

Auger and Bit Manufacturers.

(For statistics see HARDWARE.)

De Witt, Morrison & Kelley, Twenty-second above Market street, 834.

Pugh Job T., rear 3112 to 3120 Market street, 749.

Awnings, Flags, etc.

Scheible William F., 49 South Third street, 743.

Establishments, 45; hands employed, 219 (men, 162; women, 49; youths, 8); capital, $132,475; annual wages, $87,424; materials, $371,677; value of product (awnings and tents), $625,269. In 1860 there were only 3 establishments; aggregate capital, $5000; hands employed, 25 (men, 9; women, 16); materials, $7225; wages, $6840; value of products, $18,500.

Bakers—Bread, etc.

Cassady C. D., 45 North Thirteenth street, 704.
Fisher Michael, 639 North Fifteenth street, 839.
Heinold Jno. M., 1432 Parrish street.
Jaus John, 1717 Chestnut street, 735.
Johnson Thomas, 302 North Thirteenth street.
Junker John, 1233 Locust street.
Kolb John G., 1407 to 1413 South Tenth street, 713.
Langer P. J., 1131 Green street, 730.
Lipp H. C. & Brother, 217 North Ninth street, 717.
Mosebach H. (Cake), S. E. corner Eleventh and Poplar streets, 839.
Mills Frank, Nineteenth street, below Spring Garden, 717.
Mullin Hugh, 3924 Market street, 713.
Partridge Thomas, 237 South Tenth street, 826.
Rupp Thomas, 918 Race street.
Wood A. W., 609 North Fifth street, 839.
Young George, 3342 Market street, 704.

Bakers—Cracker, etc.

Camp W. E. & N. H., 625 and 627 North Broad street, 731.
Carrick D. & Co., 1903 Market street, 742.
Keebler Godfrey, 258 to 264 North Twenty-second street, 796.
Wattson & Co., 157 North Front street, 847.
Wilson Walter G. & Co., 212 and 214 North Front street, 742.

Bakers—Pie.

Hutchison W. D., 806 to 810 South Twelfth street, 839.
Thumlert Charles, 476 North Fifth street, 758.

Statistics of "bread, crackers and other bakery products:" Establishments, 3550; steam engines, 187 (combined horse-power, 2370); water-wheels, 2 (combined horse-power, 218); hands employed, 14,126 (men, 12,598; women, 842; youths, 686); capital, $10,025,966; annual cost of labor, $5,353,184, and of materials, $22,211,856; value of products in 1870, $36,907,704. This must have included only the larger bakeries, for in the table of occupations are found the following returns: Number of bakers in 1870, 27,680 (males, 27,442; females, 238); ages, 10 to 15, 537; 16 to 59, 26,592; 60 and over, 551; born in the United States, 11,167; Germany, 10,863; Ireland, 2421; England and Wales, 897; Scotland, 487; British America, 377; Sweden, Norway and Denmark, 134; France, 628; China and Japan, 31. Exports of bread and biscuit during the year 1872–3, 11,700,767 pounds, worth $690,832; year ending June 30, 1874, 11,142,439 pounds, worth $676,197.

Barbers' Supplies.

Hambleton Job & Son, 221 Spruce street, 735.

Number of barbers and hair-dressers in the United States in 1870, 23,935 (males, 22,756; females, 1179); ages, 10 to 15, 315; 16 to 59, 23,340; 60 and over, 280; born in the United States, 16,377; Germany, 4814; Ireland, 423; England and Wales, 381; Scotland, 71; British America, 350; Sweden, Norway and Denmark, 67; France, 433; China and Japan, 243. Nnmber of apprentices to barbers, 859 (males, 853; females, 6); ages, 10 to 15, 265; 15 to 21, 594; born in the United States, 685; Germany, 134; Ireland, 4; England and Wales, 12; Scotland, 1; British America, 7; France, 3.

Bath Boilers and Tanks.

(For statistics see TIN, COPPER AND SHEET-IRON WARE.)

Myers George, 204 North Broad street, 746.

Bed Coverlet Manufacturer.

Schmidt George F., 1429 and 1431 Franklin street, 739.

Table-cloths, qnilts and connterpanes (cotton) mannfactnred in 1870, 493,892; coverlids (woollen), 226,744.

Belts and Belting Manufacturers.

Alexander Brothers, 410 and 412 North Third street, 721.
Arny Charles W., 148 North Third street, 836.
Eckfeldt & Richie, 418 North Third street, 720.
Forepaugh Wm. F., Jr., and Bros., Randolph and Jefferson streets, 747.
Rorer Thomas J., 112 North Third street, 792.

Belting and Hose (leather): Establishments, 91; steam-engines, 13 (combined horse-power, 302); water-wheels, 3 (combined horse-power, 42); hands employed, 808 (men, 784; women, 8; yonths, 16); aggregate capital, $2,118,577; annnal cost of labor, $454,187, and of material, $3,231,204; valne of prodncts in 1870, $4,558,043. The India-rnbber belting and hose made in 1870 amonnted to 906,000 ponnds.

Billiard Table Manufacturers.

Schaffer J. & Brother, 471 and 473 North Third street, 785.

Establishments in 1870, 39; steam-engines, 4 (combined horse-power, 86); hands employed, 505 (men, 493; women, 2; yonths, 10); aggregate capital, $805,000; annual cost of labor, $383,768, and of materials, $650,864; value of prodncts, $1,692,943. Valne of billiard tables and apparatus exported in 1872–3, $25,857, and in 1873–4, $48,799.

Blacking Manufacturers.

Bartlett H. A. & Co., 113 to 117 North Front street, 731.

Cragin I. L. & Co., 119 South Fourth street, 741.

Mason Jas. S. & Co., 140 N. Front, 806.

Establishments in 1870, 32; steam-engines, 8 (combined horse-power, 91); hands employed, 305 (men, 134; women, 158; youths, 13); aggregate capital, $266,750; annual cost of labor, $107,450, and of material, $428,716; annual value of products, $817,768. According to the special report as revised by Mr. Blodget, there were 8 establishments in Philadelphia. Steam-engines, 4 (horse-power, 40); hands employed, 164 (men, 41; women, 113; youths, 10); capital, $140,500; wages, $60,500; materials, $279,137; products, $455,572. Value of blacking exported from the United States during 1873–4, $67,987.

Blacksmiths.

Blacksmithing Establishments, 26,364; steam-engines, 69 (horse-power, 747); water-wheels, 66 (horse-power, 628); hands employed, 52,982 (men, 52,527; women, 9; youths, 446); capital, $15,977,992; wages, $9,246,549; materials, $13,223,907; products, $41,828,296. *Blacksmiths*, 141,774; ages, 10 to 15, 599; 16 to 59, 135,186; 60 and over, 5989; born in the United States, 101,567; Germany, 14,012; Ireland, 12,339; England and Wales, 5005; Scotland, 1401; British America, 3712; Sweden, Norway and Denmark, 1236; France, 866; China and Japan, 44.

Blank Books and Bookbinders.

Arnold James, 22 South Fifth street, 825.

Clark John C. & Sons, 230 Dock street, 739.

Jones John, 712 Sansom street, 732.

Southwick, McCay & Co., 38 Hudson street, 762.

Establishments in 1870, 500; steam-engines, 77 (horse-power, 773); hands employed, 7967 (men, 3972; women, 3175; youths, 550); capital, $5,319,410; wages, $3,095,821; materials, $8,026,870; products, $14,077,309. The returns in the table of occupations are as follows: Bookbinders and finishers, 9104 (males, 6375; females, 2729); ages, 10 to 15, 448; 16 to 59, 8496; 60 and over, 160; born in the United States, 6460; Germany, 944; Ireland, 778; England and Wales, 498; Scotland, 93; British America, 120; Sweden, Norway and Denmark, 52; France, 39.

Bluing.

Bartlett H. A. & Co., 113 North Front street, 731.

Wiltberger D. S., 233 North Second street, 739.

Establishments, 11; steam-engine, 1 (horse-power, 60); hands employed,

54 (men, 36; women, 11; youths, 7); capital, $52,500; wages, $17,975; materials, $37,422; products, $92,100.

Bobbin and Spool Manufacturers.

(For statistics see WOOD, TURNED and CARVED.)

Cundey E. & Brother, 848 North Fourth street, 724.

Bolts, Nuts, Screws, etc.

M. J. Coleman Bolt and Nut Co., Hancock, Mascher and Columbia avenue, 728.

Shields William, Twenty-third above Race street, 838.

Sykes L. & Son, 723, 725 and 727 Richmond street, 779.

Bolts, Nuts, Washers and Rivets.—Establishments, 93; steam-engines, 69 (horse-power, 2480); water-wheels, 24 (horse-power, 743); hands employed, 4423 (men, 3632; women, 89; youths, 702); capital, $4,263,227; wages, $1,665,426; materials, $4,021,070; products, $7,191,151. *Screws.*—Establishments, 18; steam-engines, 11 (horse-power, 978); water-wheels, 3 (horse-power, 138); hands employed, 1582 (men, 924; women, 476; youths, 182); capital, $9,147,880; wages, $664,408; materials, $1,248,-135; products, $3,425,473.

Boiler-Makers.

(See STEAM-ENGINES AND BOILERS.)

Boiler (Steam) Cleansing Compound.

Lord George W., 232 Arch street, 819.

Bone Work—Buttons, Dominoes, Fancy-Work, etc.

Emil Wahl, 2342 Marshall street, 747.

Buttons.—Establishments, 64; steam-engines, 31 (horse-power, 281); water-wheels, 20 (horse-power, 316); hands employed, 1912 (men, 617; women, 949; youths, 346); capital, $1,013,700; wages, $580,380; materials, $751,183; products, $1,778,893.

Bookbinders' Furnishing-House.

(For statistics of bookbinding see BLANK BOOKS AND BOOKBINDING.)

Copper John C., S. E. corner Sixth and Minor streets, 823.

Paquet E. R. (Bookbinders' Dies), 24 South Fifth street, 847.

Booksellers and Publishers.

Baker, Davis & Co., 17 South Sixth street, 827.

Barnes A. S. & Co., New York, 760.

Burley S. W., 152 South Fourth street, 793.

Printing and Publishing (not specified).—Establishments, 311; steam-engines, 187 (horse-power, 2698); water-wheel, 1 (horse-power, 20); hands employed, 10,668 (men, 8718; women, 1231; youths, 719); capital, $16,839,993; wages, $7,156,332; materials, $11,398,131; products, $28,995,214. *Book Printing and Publishing.*—Establishments, 40; steam-engines, 28 (horse-power, 458); hands employed, 1390 (men, 920; women, 352; youths, 118); capital, $2,128,993; wages, $760,275; materials, $1,525,773; products, $3,568,823. *Booksellers and Stationers,* 3392 (males, 3337; females, 55); ages, 16 to 59, 3272; 60 and over, 120; born in the United States, 2417; Germany, 324; Ireland, 259; England and Wales, 188; Scotland, 65; British America, 29; Sweden, Norway and Denmark, 21; France, 32; China or Japan, 1.

Boots and Shoes.

Funk George F., 633 Arch street, 744.
Helweg & Co., 614 Arch street, 721.
Meyer C. A. Adolph, 228 South Fourth street, 788.
Smith George W., 3508 Market street, 835.

Boot and Shoe Upper Manufacturers.

Greiner J. F., 221 North Fourth street, 738.
Ryan Joseph, 236 North Fourth street, 749.

For statistics of the manufacture of boots and shoes in 1860 and 1870 see pages 612 and 614. The following statistics with reference to boot- and shoemakers are found in the table of occupations. Number in 1870, 171,127 (males, 161,485; females, 9642); ages, 10 to 15, 2328; 16 to 59, 159,542; 60 and over, 9257; born in the United States, 108,320; Germany, 28,226; Ireland, 16,998; England and Wales, 5082; Scotland, 1041; British America, 5506; Sweden, Norway and Denmark, 1402; France, 1520; China and Japan, 489.

Boring Machines.

Flanders L. B., Eleventh and Hamilton streets, 829.

Bottle Moulds.

Weidig & Yockel, 235 Bread street, 749.

Box Makers—Cigar.

Brecht Fred., Hillsdale street, between Third and Fourth, 836.
Wemmer N. J. & Son, 215 Pear street, 812.

Box Makers—Packing.

Belz Adam, 312 Cherry street, 789.

Meyer Martin, 217 Quarry street.
Myers C., 514 North street, 836.

Cigar Boxes.—Establishments, 104; steam-engines, 17 (horse-power, 200); water-wheels, 5 (horse-power, 73); hands employed, 783 (men, 486; women, 139; youths, 158); capital, $274,610; wages, $242,130; materials, $477,499; products, $960,222. *Wooden Packing-boxes.*—Establishments, 489; steam-engines, 195 (horse-power, 4303); water-wheels, 148 (horse-power, 2642); hands employed, 4509 (men, 4084; women, 195; youths, 230); capital, $3,571,972; wages, $1,909,088; materials, $4,236,745; products, $8,222,433.

Boxwood, Mahogany, etc.

Wemmer N. J. & Son, 215 Pear street, 812.

Entered into consumption in the United States in 1872–3: Rosewood (value), $199,859; sandalwood, $266; all other cabinet woods not otherwise specified, $177,657; in 1873–4, rosewood, $208,160; all other cabinet woods, etc., $194,614.43.

Brass Cock Manufacturers and Brass-Work.

Lehman B. E., Bethlehem, Pa., 756.
Everhart James M., Scranton, Pa., 824.

Brass Founders.

Bradford John, 721 East York street.
Halstead & Spencer, 1129 Cherry street, 819.
Reeves Paul S., 760 South Broad street, 789.

Brass and Copper Tubing.—Establishments, 3; steam-engines, 2 (horse-power, 80); hands employed, 121 (males above 16, 114; youths, 7); capital, $203,600; wages, $60,434; materials, $345,875; products, $500,000. *Brass Founding and Finishing.*—Establishments, 275; steam-engines, 146 (horse-power, 1882); water-wheels, 6 (horse-power, 266); hands employed, 3377 (men, 3102; women, 39; youths, 236); capital, $4,783,585; wages, $1,731,306; materials, $3,293,629; products, $6,855,756.

Brewers.

(See Wines and Liquors.)

Brick Machines and Presses.

Carnell F. L. & D. R., 1844 Germantown avenue, 724.
Chambers, Bro. & Co., Fifty-second street and Lancaster avenue, 803.

Brick.—Establishments, 3114; steam-engines, 372 (horse-power, 10,333); water-wheels, 19 (horse-power, 218); hands employed, 43,293 (men, 39,541; women, 258; youths, 3494); capital, $20,504,238; wages, $10,768,853; ma-

terials, $7,413,097; products, $29,028,359. *Brick- and Tile-makers*, 26,007 (males, 25,996; females, 74); ages, 10 to 15, 1456; 16 to 59, 24,216; 60 and over, 398; born in the United States, 15,268; Germany, 3340; Ireland, 3443; England and Wales, 731; Scotland, 85; British America, 2269; Sweden, Norway and Denmark, 305; France, 159; China and Japan, 62.

Bridge Builders.

Burton A. B., 430 Walnut street, 796.
Cofrode J. H. & Co., 530 Walnut street, 731.
Continental Bridge Company, 110 South Fourth street, 706.
Keystone Bridge Company, 218 South Fourth street, 807.
Moseley Thomas W. H., 147 South Fourth street, 851, 852.

Bridge Building.—Establishments, 64; steam-engines, 36 (horse-power, 1034); water-wheels, 2 (horse-power, 40); hands employed, 2090 (men, 2069; youths, 21); capital, $2,973,250; wages, $1,123,353; materials, $3,239,771; products, $5,476,175. *Bridge Builders and Contractors*, 1029; ages, 16 to 59, 1013; 60 and over, 16; born in the United States, 860; Germany, 23; Ireland, 80; England and Wales, 22; Scotland, 9; British America, 7; Sweden, Norway and Denmark, 3; France, 3.

Bronze Ware.

(See HARDWARE.)

Clamer Francis J. & Co., 909 North Ninth street, 740.

Bronze Work—Statuary Bronzes, etc.

Wood Robert & Co., 1136 Ridge avenue, 700.

Bronze Castings.—Establishments, 9; steam-engines, 2 (horse-power, 45); hands employed, 187 (men, 156; women, 29; youths, 2); capital, $539,300; wages, $111,714; materials, $63,375; products, $280,400.

Builder—Composite and Iron Houses.

Moseley Thomas W. H., 147 South Fourth street, 851, 852.

Builders' Supplies.

French E. D. & W. A., Third and Vine streets, Camden, N. J., 707.

Builders and Contractors, 7511 (males, 7508; females, 3); ages, 16 to 59, 7177; 60 and over, 334; born in the United States, 4977; Germany, 483; Ireland, 1263; England and Wales, 404; Scotland, 104; British America, 145; Sweden, Norway and Denmark, 36; France, 44; China or Japan, 1.

Butchers' Tools.

Nittinger August, Jr., 828 North Fourth street, 759.

Butchers, 44,354; ages, 10 to 15, 338; 16 to 59, 42,841; 60 and over, 1175. Born in the United States, 23,412; Germany, 13,227; Ireland, 2646; England and Wales, 2089; Scotland, 247; British America, 504; Sweden, Norway and Denmark, 123; France, 1076; China and Japan, 85. *Butchering Establishments* (including only the larger ones), 509; steam-engines, 18 (horse-power, 247); water-wheel, 1 (horse-power, 6); hands employed, 1881 (men, 1851; women, 11; youths, 19); capital, $2,099,905; wages, $546,346; materials, $11,039,928; products, $13,686,061.

Cars, Railroad and Repairing.

(See RAILROADS.)

Card and Card-Board.

Beck Charles, 16 South Sixth street, 720.

Collins A. M., Son & Co., 18 South Sixth street, 718.

Restein Brothers, 1218 South Eighth street, 839.

Cards.—Establishments, 18; steam-engines, 11 (horse-power, 179); hands employed, 653 (men, 235; women, 373; youths, 45); capital, $984,600; wages, $247,136; materials, $864,800; products, $1,519,000.

Carpentering and Building.

Establishments, 17,142; steam-engines, 289 (horse-power, 4654); water-wheels, 73 (horse-power, 1140); hands employed, 67,864 (men, 67,306; women, 5; youths, 553); capital, $25,110,428; wages, $29,169,588; materials, $65,943,115; products, $132,901,432. *Carpenters and Joiners*, 344,-596; ages, 10 to 15, 864; 16 to 59, 329,962; 60 and over, 13,770; born in the United States, 264,531; Germany, 29,704; Ireland, 16,566; England and Wales, 9784; Scotland, 2845; British America, 11,288; Sweden, Norway and Denmark, 3500; France, 1796; China and Japan, 155.

Carpets.

Gould & Co., Ninth and Market streets. See inside front cover.

Carpets (rag).—Establishments, 474; steam-engines, 2 (horse-power, 60); water-wheels, 2 (horse-power, 24); hands employed, 1016 (men, 874; women, 116; youths, 26); capital, $310,744; wages, $141,148; materials, $498,595; products, $1,005,327. *Carpets (other than rag).*—Establishments, 215; steam-engines, 45 (horse-power, 3017); water-wheels 18 (horse-power, 702); hands employed, 12,098 (men, 6808; women, 4316; youths, 974); capital, $12,540,750; wages, $4,681,718; materials, $13,577,-993; products, $21,761,573.

Carriage and Coach Manufacturers.

Allgaier John, S. E. corner of Fifth and Buttonwood streets, 819.

Beckhaus Joseph, 1204 Frankford avenue, 815.

Caffrey Charles S., Camden, N. J., 794 and 795.
Cunningham P. B. & Co., Bethlehem, Pa., 827.
Dunlap Henry, 475 North Fifth street, 834.
Eaches William, 410 Girard avenue and 1168 North Fourth street, 763.
Fleming James, S. E. corner of Twelfth and Thompson streets, 721.
Gardner William D., 214 South Fifth street, 796.
Lane David M. & Son, 3432 Market street, 709.
Rech Jacob, S. E. corner of Eighth and Girard avenue, 746.
Rogers William D. & Co., 1009 and 1011 Chestnut street, front of book.
Rodgers, Dean & Monteith, 1537 Filbert street, 745.
Wallis & Blackiston, 1541 Ridge avenue, 763.
Weaver & Lyle, 216 and 218 North Broad street, 818.
Wenzler G., 329 and 331 North Broad street, 789.

Carriage Wood-Work.

Clymer F. T., Wilmington, Delaware, 779.

Carriages and Sleds (children's).—Establishments, 53; steam-engines, 22 (horse-power, 366); water-wheels, 21 (horse-power, 391); hands employed, 913 (men, 780; women, 89; youths, 44); capital, $746,628; wages, $407,327; materials, $495,281; products, $1,432,833. *Carriages and Wagons.*—Establishments, 11,847; steam-engines, 279 (horse-power, 4169); water-wheels, 363 (horse-power, 4651); hands employed, 54,928 (men, 54,280; women, 76; youths, 572); capital, $36,563,095; wages, $21,272,730; materials, $22,787,341; products, $65,362,837. *Carriage- and Wagon-makers,* 42,464 (males, 42,432; females, 32); ages, 10 to 15, 208; 16 to 59, 40,738; 60 and over, 1518; born in the United States, 32,244; Germany, 5196; Ireland, 1590; England and Wales, 1162; Scotland, 222; British America, 977; Sweden, Norway and Denmark, 288; France, 288; China and Japan, 3.

Cattle Powder.

Miller F. A., 129 North Front street, 808.

Cement.

French E. D. & W. A., Third and Vine streets, Camden, N. J., 707.
Mitchell J. E., 310 York avenue. Portland Cement, pure as imported.

Establishments, 45; steam-engines, 23 (horse-power, 1190); water-wheels, 23 (horse-power, 900); hands employed, 1632 (men, 1508; youths, 124); capital, $1,521,500; wages, $631,993; materials, $773,192; products, $2,033,893.

Cemeteries.

Mount Vernon Cemetery Company, corner of Ridge and Lehigh avenues, office, 137 South Fifth street, 801.

Chemical Stoneware Manufactory.

Remmey Richard C., 2363 Frankford avenue, 727.

Stone and Earthenware.—Establishments, 777; steam-engines, 82 (horse-power, 1586); water-wheels, 8 (horse-power, 122); hands employed, 6116 (men, 5059; women, 316; youths, 741); capital, $5,294,398; wages, $2,247,173; materials, $1,702,705; products, $6,045,536.

Chemists, Manufacturing.

(For statistics, see DRUGS AND CHEMICALS.)

Browning & Brothers, 42 and 44 North Front street, 719.

Hance Brothers & White, Philadelphia, 796.

Harrison Brothers & Co., 105 South Front street, 704.

Phillips Moro, Philadelphia, 702.

China Decorators.

Haden Thomas, 3633 Market street, 762.

Phillips Joseph W., Jr., 132 North Seventeenth street, 736.

Entered into consumption in the United States in 1871–2, *China, Porcelain and Parian Ware, Plain White*, $470,749.50; in 1872–3, $479,617.15; in 1873–4, $397,729.90. *China, Porcelain and Parian Ware, Gilded and Ornamented*, in 1871–2, $814,133.52; in 1872–3, $867,205.77; in 1873–4, $676,655.61.

Chiropodist.

Burdict S. P., 1338 Parrish street, 742.

Chiropodists, 65 (males, 63; females, 2); ages, 16 to 59, 60; 60 and over, 5; born in the United States, 47; Germany, 4; Ireland, 3; England and Wales, 5; Scotland, 1; British America, 1; France, 2.

Cigar Manufacturers.

(For statistics of cigars and tobacco, see pages 571, 615, 616.)

Batchelor Brothers, 808 Market street, 783.

Cigar-makers, 28,286 (males, 26,442; females, 1844); ages, 10 to 15, 1209; 16 to 59, 26,893; 60 and over, 184; born in the United States, 13,833; Germany, 9292; Ireland, 547; England and Wales, 804; Scotland, 51; British America, 177; Sweden, Norway and Denmark, 114; France, 162; China and Japan, 1727.

Civil Engineers.

(For statistics, see ENGINEERS, etc.)

Moseley Thomas W. H., 147 South Fourth street, 851, 852.

Clocks, Regulators, etc.

Cooke B. J., 137 North Third street, 781.

Establishments, 26; steam-engines, 12 (horse-power, 502); water-wheels, 14 (horse-power, 277); hands employed, 1330 (men, 1177; women, 66; youths, 87); capital, $882,700; wages, $805,340; materials, $808,409; products, $2,509,643.

Clothiers.

Rockhill & Wilson, 603 and 605 Chestnut street, 746.

Men's Clothing.—Establishments, 7838; steam engines, 37 (horse-power, 457); water-wheels, 3 (horse-power, 96); hands employed, 106,679 (men, 46,934; women, 58,466; youths, 1279); capital, $49,891,080; wages, $30,535,879; materials, $86,117,231; products, $147,650,378. *Women's Clothing.*—Establishments, 1847; steam-engines, 4 (horse-power, 35); water-wheels, 2 (horse-power, 125); hands employed, 11,696 (men, 1105; women, 10,247; youths, 344); capital, $3,520,218; wages, $2,513,956; materials, $6,837,978; products, $12,900,583.

Coal Miners and Shippers.

(For Iron Coal Breaker see page 851. For statistics of coal see Physical Geography, pp. 180, 181, and Pennsylvania, in Topography, pp. 349, 350.)

Pardee A. & Co., 303 Walnut street and Trinity Building, N. York, 768.

Miners, 152,107 (males, 152,061; females, 46); ages, 10 to 15, 3524; 16 to 59, 144,420; 60 and over, 4163; born in the United States, 57,388; Germany, 8579; Ireland, 22,822; England and Wales, 28,877; Scotland, 5515; British America, 2489; Sweden, Norway and Denmark, 1559; France, 1731; China and Japan, 17,069.

Commercial and Mercantile Agency.

Dun R. G. & Co., 618 Chestnut street, 823.

Traders and Dealers (not specified), 100,406 (males, 97,573; females, 2883); ages, 10 to 15, 387; 16 to 59, 96,067; 60 and over, 3952; born in the United States, 74,381; Germany, 11,078; Ireland, 5647; England and Wales, 2992; Scotland, 800; British America, 985; Sweden, Norway and Denmark, 376; France, 1308; China and Japan, 604. *Commercial travellers,* 7262 (males, 7230; females, 32); ages, 10 to 15, 4; 16 to 59, 7103; 60 and over, 155; born in the United States, 6203; Germany, 350; Ireland, 222; England and Wales, 235; Scotland, 51; British America, 84; Sweden, Norway and Denmark, 27; France, 19.

Concrete.

(For statistics see Cement.)

Mitchell J. E., 310 York avenue, Philadelphia, Tiles, House Fronts, etc., of pure Cement and Silica.

Confectioners' Tools and Machines.

Andress Thomas J. & Co., 229 Vine street, 774.

Mills Thomas & Bro., N. E. cor. Eighth and Thompson streets, 817.

Confectioners, Manufacturing.

Campbell S. S. & Co., 422 Market street, 752.

Croft, Wilbur & Co., 125 North Second street, 693.

Greer G. N., N. E. corner Tenth and Walnut streets, 702.

Harbach Bros., 36 North Eighth street and 809 Filbert street, 708.

Holt A. W., 1009 Walnut street, 804.

Whitman E. G. & Co., 812 Chestnut street, 815.

Whitman Stephen F. & Son, Twelfth and Market streets and 1004 Chestnut street, 716.

Confectionery.—Establishments, 949; steam-engines, 41 (horse-power, 550); water-wheels, 3 (horse-power, 23); hands employed, 5285 (men, 4151; women, 1225; youths, 449); capital, $4,995,293; wages, $2,091,826; materials, $8,703,560; products, $15,922,643. *Confectioners,* 8219 (males, 7607; females, 612); ages, 10 to 15, 84; 16 to 59, 7881; 60 and over, 254; born in the United States, 4350; Germany, 2185; Ireland, 477; England and Wales, 312; Scotland, 101; British America, 114; Sweden, Norway and Denmark, 30; France, 225; China and Japan, 6.

Cooper.

Wischman Herman, 122 Pegg street and 123 Willow street, 756.

Cooperage.—Establishments, 4961; steam-engines, 153 (horse-power, 3653); water-wheels, 147 (horse-power, 2644); hands employed, 23,314 (men, 22,764; women, 20; youths, 530); capital, $9,798,847; wages, $7,819,813; materials, $12,831,796; products, $26,863,734. *Coopers,* 41,789; ages, 10 to 15, 349; 16 to 59, 38,830; 60 and over, 2610; born in the United States, 25,903; Germany, 8954; Ireland, 3484; England and Wales, 706; Scotland, 232; British America, 973; Sweden, Norway and Denmark, 272; France, 589; China and Japan, 11.

Cordage, Rope and Twine.

Baumgardner, Woodward & Co., 38 South Delaware avenue, 698, 847.

Establishments, 201; steam-engines, 36 (horse-power, 2381); water-wheels, 30 (horse-power, 664); hands employed, 3698 (men, 2115; women, 779; youths, 804); capital, $3,530,470; wages, $1,234,272; materials, $5,739,608; products, $8,978,382.

Cork Manufacturers and Dealers.

Butz Alfred L., 829 and 831 North Third street, 835.

Brauer & Brueckmann, 248 North Front street, 847.

Guimaraes José de Bessa, 130 Walnut street, 833.

Murphy & Monaghan, 522 South Fifth street, 839.

Pearson S. B. & Co., Fifty-second street and Lancaster avenue, 740.

Rossell Charles N., 417 North Third street, 729.

Wilkie Samuel, 842 North Third street, 737.

Cork wood (alcornoque) or bark (unmanufactured) entered into consumption in the United States in 1870–71, $266,644.97; in 1871–2, $484,348.04; in 1872–3, $645,928; in 1873–4, $435,270. *Cork* (manufactured), in 1870–71, $144,578; in 1871–2, $125,480; in 1872–3, $159,602; in 1873–4, $115,727.

Costumer.

Desmond W. C., 917 Race street, 835.

Cotton Bale-ties.

Moseley Thomas W. H., 147 South Fourth street, 851, 852.

Cotton and Woollen Machinery.

(For statistics of cotton, see *Table VI.* in APPENDIX; also pages 570, 571, 614; and for woollen goods, see page 615.)

Bridesburg Manufacturing Company, 65 North Front street, 822.

Cotton and Woollen Machinery.—Establishments, 338; steam-engines, 136 (horse-power, 3383); water-wheels, 115 (horse-power, 2543); hands employed, 8918 (men, 8438; women, 326; youths, 154); capital, $10,603,424; wages, $4,632,913; materials, $5,246,874; products, $13,311,118.

Crucible Manufacturers.

Strow, Wile & Co., 1330 to 1334 Callowhill street, 837.

Newkumet Adam, 1537 North Front street, 704.

Taylor Robert & Co., corner of Nineteenth and Callowhill streets, 768.

Establishments, 10; steam-engines, 7 (horse-power, 155); hands employed, 119 (men, 112; youths, 7); capital, $699,000; wages, $127,188; materials, $538,712; products, $1,117,463. Crucibles of foreign manufacture entered into consumption in the United States in 1870–1, lead, $85; sand, $2191; in 1871–2, lead, $3983; sand, $4102; in 1872–3, lead, $451; sand, $981; in 1873–4, lead, $328; sand, $813.

Cutlery Manufacturers.

Herder L. & Son, 606 Arch street, 809.

Cutlery and Edge Tools (not specified).—Establishments, 184; steam-engines, 61 (horse-power, 1405); water-wheels, 87 (horse-power, 2601); hands employed, 4428 (men, 3966; women, 226; youths, 236); capital, $4,127,547; wages, $2,131,758; materials, $1,624,043; products, $5,621,841.

Cutlery of foreign manufacture entered into consumption in the United

States in 1870–1, $1,986,010.09; in 1871–2, $2,160,886.45; in 1872–3, $2,244,352.41; in 1873–4, $1,615,984.04.

Dentistry.

Thomas Dr. J. D., 912 Walnut street, 778.
Wardle Thomas, M. D., D. D., 1029 Race street, 694.

Dentists' Gold Foil.

Abbey Charles & Sons, 230 Pear street.

Dentistry, Mechanical.—Establishments, 650; steam-engines, 2 (horse-power, 6); hands employed, 1020 (men, 991; women, 15; youths, 14); capital, $621,762; wages, $184,272; materials, $441,534; products, $1,634,844. *Dentists*, 7839 (males, 7815; females, 24); ages, 16 to 59, 7678; 60 and over, 163; born in the United States, 7299; Germany, 146; Ireland, 58; England and Wales, 116; Scotland, 24; British America, 106; Sweden, Norway and Denmark, 9; France, 21.

Gold Leaf and Foil.—Establishments, 51; steam-engines, 4 (horse-power, 98); hands employed, 613 (men, 373; women, 189; youths, 51); capital, $412,905; wages, $264,408; materials, $621,773; products, $1,411,431.

Dredging.

American Dredging Company, 10 South Delaware avenue, 775.

Druggists (Retail).

Brown Frederick, N. E. corner of Fifth and Chestnut streets, 778.
Davis G. H., 1050 Germantown avenue, 724.
Davis Robert Coulton, S. E. corner of Sixteenth and Vine streets, 834.
Hufnal J. T., 1900 Green street, 713.
Knight William E., S. E. corner of Tenth and Locust streets, 742.
Keys Roger, N. W. corner of Twelfth and Pine streets, 736.
Kunkel E. F., 259 North Ninth street, 729.
Marks James N., 3742 Market street, 713.
Musson W. A., 2043 Chestnut street, 839.
Shinn James T., S. W. corner Broad and Spruce streets, 717.
Van Buskirk & Apple, Second and Dauphin streets, 804.
Witmer D. L. & Brother, junc. of Fifth and Germantown avenue, 786.
Wyeth John & Brother, 1412 Walnut street, 806.

Druggists (Wholesale).

Mackeown, Bower, Ellis & Co., 1000 Market street, 827.
Shoemaker Robert & Co., N. E. corner of Fourth and Race streets, 728.

Drugs and Chemicals.—Establishments, 292; steam-engines, 114 (horse-power, 3637); water-wheels, 17 (horse-power, 445); hands employed, 4729

(men, 4026; women, 452; youths, 251); capital, $12,750,800; wages, $2,141,238; materials, $11,681,405; products, $19,417,194. *Druggists*, 17,369 (males, 17,335; females, 34); ages, 16 to 59, 16,977; 60 and over, 392; born in the United States, 14,273; Germany, 1470; Ireland, 339; England and Wales, 607; Scotland, 88; British America, 189; Sweden, Norway and Denmark, 64; France, 118; China and Japan, 51.

Dry Goods (Wholesale and Retail).

(For statistics of COTTON and WOOLLEN GOODS, see pages 570, 571, 614, 615.)

Homer, Colladay & Co., 1412 and 1414 Chestnut street, 757.

Sharpless & Sons, N. W. corner of Eighth and Chestnut streets, 812.

Williams, Yerkes & Co. (wholesale), 611 Market street, 887.

Traders in Dry Goods in 1870, 39,790 (males, 39,129; females, 661); ages, 16 to 59, 38,543; 60 and over, 1247; born in the United States, 31,180; Germany, 4564; Ireland, 1505; England and Wales, 786; Scotland, 319; British America, 242; Sweden, Norway and Denmark, 122; France, 369; China and Japan, 4.

Dye-Woods, Dye-Stuffs, etc.

Browning & Brothers, 42 and 44 North Front street, 719.

Dye-Woods, Stuffs and Extracts.—Establishments, 19; steam-engines, 22 (horse-power, 1004); water-wheels, 7 (horse-power, 565); hands employed, 548 (men, 517; women, 5; youths, 26); capital, $1,227,500; wages, $300,755; materials, $1,275,434; products, $2,053,300.

Dyers and Scourers.

Klauder R., Howard, corner of Oxford street, 730.

Bleaching and Dyeing.—Establishments, 250; steam-engines, 101 (horse-power, 4278); water-wheels, 26 (horse-power, 1384); hands employed, 4172 (men, 3279; women, 680; youths, 213); capital, $5,006,950; wages, $1,783,449; materials, $53,166,634; products, $58,571,493. *Bleachers, Dyers and Scourers*, 4901 (males, 4582; females, 319); ages, 10 to 15, 141; 16 to 59, 4552; 60 and over, 208; born in the United States, 2013; Germany, 705; Ireland, 1091; England and Wales, 614; Scotland, 165; British America, 39; Sweden, Norway and Denmark, 22; France, 162.

Electro-Magnetic Machines.

Neff William C., Philadelphia, 758.

Electropathic Physician.

Armitage Dr. Thomas, N. E. corner Fifteenth and Cherry streets, 736.

Physicians and Surgeons, 62,383 (males, 61,858; females, 525); ages, 16 to 59, 57,947; 60 and over, 4436; born in the United States, 55,920;

Germany, 2362; Ireland, 913; England and Wales, 983; Scotland, 268; British America, 793; Sweden, Norway and Denmark, 82; France, 308; China and Japan, 193.

Elevators, Hoists, Dumb-waiters.

Murtaugh's, Isaac Richards, 2217 Chestnut street, 836.

Stokes & Parrish, N. W. corner Thirtieth and Chestnut streets, 756.

Encaustic Floor Tiles.

Sharpless & Watts, 1325 Market street, 714.

Encaustic Tiles entered into consumption in the United States in 1870–71, (value), $4771; 1871–2, $8083; 1872–3, $18,717; 1873–4, $14,193.

Engineers, Contractors, etc.

(See also BRIDGE BUILDERS.)

Starr Jesse W. & Son, 435 and 437 Chestnut street, 726.

Civil Engineers, 4703; ages, 10 to 15, 1; 16 to 59, 4574; 60 and over, 128; born in the United States, 3959; Germany, 191; Ireland, 167; England and Wales, 206; Scotland, 39; British America, 42; Sweden, Norway and Denmark, 17; France, 31. *Engineers and Firemen*, 34,233; ages, 10 to 15, 33; 16 to 59, 33,857; 60 and over, 343; born in the United States, 24,286; Germany, 2098; Ireland, 3317; England and Wales, 2550; Scotland, 742; British America, 653; Sweden, Norway and Denmark, 127; France, 179.

Engravers.

Crosscup & West (wood), 702 Chestnut street, 709.

Gafney James F., 53 North Seventh street, 788.

Paquet E. R. (general), 24 South Fifth street, 847.

Sartain John (plate), 728 Sansom street, 734.

Taylor & Smith (wood), 113 South Fourth street, 754.

Engravers, 4226 (males, 4197; females, 29); ages, 10 to 15, 48; 16 to 59, 4102; 60 and over, 76; born in the United States, 2286; Germany, 890; Ireland, 230; England and Wales, 434; Scotland, 103; British America, 49; Sweden, Norway and Denmark, 18; France, 113; China or Japan, 1. *Engraving.*—Establishments, 157; steam-engines, 13 (horse-power, 151); hands employed, 1407 (men, 1047; women, 269; youths, 91); capital, $1,744,795; wages, $1,022,090; materials, $452,072; products, $2,093,482.

Fancy Cabinet-ware.

Goff R. W. P., 625 and 627 Wall street, 844.

Traders and Dealers in Cabinet-ware, 4087 (males, 4071; females, 16); ages, 16 to 59, 3928; 60 and over, 159; born in the United States, 2756;

Germany, 673; Ireland, 258; England and Wales, 179; Scotland, 34; British America, 62; Sweden, Norway and Denmark, 16; France, 41. *Cabinet-makers*, 42,835 (males, 42,123; females, 712); ages, 10 to 15, 886; 16 to 59, 39,854; 60 and over, 2095; born in the United States, 25,293; Germany, 11,798; Ireland, 1595; England and Wales, 1020; Scotland, 240; British America, 849; Sweden, Norway and Denmark, 632; France, 518; China and Japan, 11. See also FURNITURE MANUFACTURERS, etc.

Fancy Goods.

Binder Mrs. M. A., Eleventh and Chestnut streets, 761.

Bond Francis, 139 South Eighth street, 766.

Fancy Articles.—Establishments, 13; steam-engines, 2 (horse-power, 77); water-wheels, 2 (horse-power, 22); hands employed, 191 (men, 82; women, 94; youths, 15); capital, $172,650; wages, $65,435; materials, $77,627; products, $188,830.

Fertilizers.

Jones William H., 1621 Market street, 844.

Phillips Moro, Philadelphia, 702.

Fertilizers (not plaster, ground).—Establishments, 126; steam-engines, 69 (horse-power, 2307); water-wheels, 33 (horse-power, 644); hands employed, 2501 (men, 2470; women, 19; youths, 12); capital, $4,395,948; wages, $766,712; materials, $3,808,025; products, $5,815,118. Special statistics for Philadelphia: *Fertilizers, Phosphate, Poudrette.*—Establishments, 8; steam-engines, 6 (horse-power, 325); hands employed, 246; capital, $1,105,000; wages, $137,744; materials, $509,660; products, $1,035,952.

Files and Rasps.

Barnett G. & H., 41 Richmond street, 730.

Disston H. & Sons, Front and Laurel streets, 750.

Files.—Establishments, 121; steam-engines, 30 (horse-power, 780); water-wheels, 18 (horse-power, 216); hands employed, 1581 (men, 1356; women, 59; youths, 166); capital, $1,659,370; wages, $638,982; materials, $468,303; products, $1,649,394.

Fire-brick Manufacturers.

(For general statistics of Bricks, see BRICK MACHINES AND PRESSES.)

Neukumet Philip, Twenty-third and Vine streets, 828.

Remmey Richard C., 1100 East Cumberland street, 727.

No special statistics for Fire-bricks were given for the whole country, but for Philadelphia the statistics were as follows: Establishments, 8; using steam, 6 (horse-power, 117); hands employed, 209 (men, 188; youths,

21); capital, $530,000; wages, $108,686; materials, $228,250; products, $501,850.

Fire Extinguishers.

Platt W. K. & Co., 212 Market street, 826.

Fire Hydrants.

Starr Jesse W. & Son, 435 and 437 Chestnut street, 726.

Florist.

Mackenzie Thos. J., Broad street and Columbia avenue, 778.

Florists, 1085 (males, 1046; females, 39); ages, 16 to 59, 1044; 60 and over, 41; born in the United States, 522; Germany, 183; Ireland, 104; England and Wales, 135; Scotland, 63; British America, 9; Sweden, Norway and Denmark, 6; France, 48.

Forwarding and Transportation.

(See Railroads; also, American Railroads, pages 627–632.)

Clyde W. P. & Co., 12 South Delaware avenue, front of book.

The following personal statistics, taken in connection with those of railroads, will give some idea of the number and nationality of persons whose occupations are connected with the business of forwarding and transporting both freight and passengers. *Boatmen and Watermen,* 21,332 (males, 21,302; females, 30); ages, 10 to 15, 408; 16 to 59, 20,484; 60 and over, 440; born in the United States, 17,499; Germany, 737; Ireland, 2019; England and Wales, 312; Scotland, 91; British America, 326; Sweden, Norway and Denmark, 131; France, 63. *Draymen, Hackmen, Teamsters,* etc., 120,756 (males, 120,560; females, 196); ages, 10 to 15, 1427; 16 to 59, 116,815; 60 and over, 2514; born in the United States, 83,078; Germany, 11,261; Ireland, 17,925; England and Wales, 2616; Scotland, 630; British America, 2613; Sweden, Norway and Denmark, 457; France, 549; China and Japan, 26. *Sailors,* 56,663; ages, 10 to 15, 312; 16 to 59, 54,618; 60 and over, 1733; born in the United States, 42,064; Germany, 2247; Ireland, 4087; England and Wales, 2170; Scotland, 704; British America, 1656; Sweden, Norway and Denmark, 1710; France, 265; China and Japan, 86.

Frames (Looking-glass and Picture).

Reukauff Geo. C., 1312 Chestnut street, 788.

Thiery A., N. E. corner Fourth and Branch streets, 725.

Looking-glass and Picture Frames.—Establishments, 320; steam-engines, 49 (horse-power, 1107); water-wheels, 4 (horse-power, 93); hands employed, 3587 (men, 2976; women, 196; youths, 415); capital, $2,590,020; wages, $1,623,653; materials, $2,466,313; products, $5,962,235.

Fruit Butter Manufacturers.

Schimmel J. O. & Co., Philadelphia, Chicago and New York, 722.

Fruits, Canned, etc.

Anderson & Campbell, Camden, N. J., 791.

Fruits and Vegetables, Canned and Preserved.—Establishments, 97; steam-engines, 45 (horse-power, 742); hands employed, 5869 (men, 1658; women, 3434; youths, 777); capital, $2,335,925; wages, $771,643; materials, $3,094,846; products, $5,425,677.

Fur Dealers and Furriers.

Keinath W., 812 Arch street, 737.

Reisky Nav. C., 237 Arch street, 789 and 806.

Furs, Dressed.—Establishments, 182; steam-engines, 6 (horse-power, 76); water-wheel, 1 (horse-power, 10); hands employed, 2903 (men, 1306; women, 1525; youths, 72); capital, $3,472,267; wages, $1,042,305; materials, $4,816,122; products, $8,903,052. *Fur Workers,* 1191 (males, 836; females, 355); ages, 10 to 15, 33; 16 to 59, 1127; 60 and over, 31; born in the United States, 435; Germany, 372; Ireland, 183; England and Wales, 111; Scotland, 8; British America, 17; Sweden, Norway and Denmark, 5; France, 17.

Furniture Manufacturers and Dealers.

Gould & Co., Ninth and Market streets, 37 and 39 North Second street and 272 South Second street, inside front cover.

Heacock William, 18 North Ninth street, 776.

Loth Henry, 645 North Broad street, 769.

Mauger I. B., 349 North Second street, 789.

Richardson W. T., corner Sixth and Oxford streets, 840.

Furniture.—Establishments, 5423; steam-engines, 764 (horse-power, 14,811); water-wheels, 406 (horse-power, 6920); hands employed, 40,554 (men, 38,023; women, 657; youths, 1874); capital, $35,740,029; wages, $17,901,379; materials, $21,669,837; products, $57,926,547. *Chairs.*—Establishments, 529; steam-engines, 117 (horse-power, 3203); water-wheels, 184 (horse-power, 4740); hands employed, 12,462 (men, 6975; women, 3168; youths, 2319); capital, $7,643,884. For personal statistics of cabinet-makers see FANCY CABINET-WARE.

Gas Apparatus.

Starr Jesse W. & Son, 435 and 437 Chestnut street, 726.

Gas-burners and Gas-heating Apparatus.

Gefrorer C., 248 N. Eighth street, 742.

Gas- and Lamp-shades, etc.

V. Quarré Co., 832 and 834 Arch street, 827.

Gas Machines.

Hulme George W., 12 North Seventh street, 705.

Gas.—Establishments, 390; steam-engines, 160 (horse-power, 2747); water-wheels, 2 (horse-power, 21); hands employed, 8723 (men, 8705; youths, 18); capital, $71,773,694; wages, $6,546,734; materials, $10,869,373; products, $32,048,851. *Gasometers.*—Establishments, 2; steam-engines, 2 (horse-power, 7); hands employed, 30; capital, $35,000; wages, $15,000; materials, $74,000; products, $140,000. *Gas Retorts.*—Establishments, $5; steam-engines, 3 (horse-power, 22); hands employed, 177 (men, 176; youth, 1); capital, $863,000; wages, $142,280; materials, $356,846; products, $665,225. *Gas- and Lamp-fixtures.*—Establishments, 39; steam-engines, 27 (horse-power, 661); water-wheel, 1 (horse-power, 50); hands employed, 2469 (men, 2089; women, 257; youths, 123); capital, $2,723,194; wages, $1,232,124; materials, $1,626,579; products, $4,061,778. For gasfitters see PLUMBERS and GASFITTERS.

Gents' Furnishing Goods.

Laing C., Sixth and Chestnut streets, 831.

Richelderfer J. H., S. E. corner Eleventh and Chestnut streets, 752.

Neckties (special statistics for Philadelphia).—Establishments, 5; hands employed, 187 (men, 7; women, 180); capital, $61,000; wages, $46,268; materials, $124,100; products, $214,500. For further statistics see SHIRTS; also HOSIERY, etc.

Glass Cutters.

Laird H. J., 205 Quarry street, 754.

Magee John A., 1235 Vine street, 835.

Glass-house Pots.

Newkumet Adam, 1537 North Front street, 704.

Glass Shades.

Galbraith A., 209 North Ninth street, 745.

Maxwell John, 226 North Ninth, 814.

Cut Glass.—Establishments, 29; steam-engines, 21 (horse-power, 180); hands employed, 285 (men, 257; women, 2; youths, 26); capital, $136,700; wages, $157,576; materials, $178,526; products, $470,875. *Plate Glass.*—Establishments, 5; steam-engines, 2 (horse-power, 52); water-wheel, 1 (horse-power, 4); hands employed, 200 (men, 195; youths, 5); capital, $195,700; wages, $132,410; materials, $86,708; products, $355,250. *Stained Glass.*—Establishments, 18; steam-engines, 3 (horse-power, 44);

hands employed, 170 (men, 156; women, 10; youths, 4); capital, $148,800; wages, $99,739; materials, $90,277; products, $297,480. *Glassware (not specified).*—Establishments, 114; steam-engines, 55 (horse-power, 1044); water-wheels, 3 (horse-power, 42); hands employed, 12,308 (men, 8494; women, 666; youths, 3148); capital, $10,385,882; wages, $5,953,423; materials, $4,376,897; products, $14,300,949.

Gold Pen Manufacturers.

Benton & Bro., 409 Chestnut street, 730.

Gold Pens and Pencils.—Establishments, 21; steam-engines, 3 (horse-power, 56); water-wheel, 1 (horse-power, 5); hands employed, 242 (men, 199; women, 30; youths, 13); capital, $268,250; wages, $133,556; materials, $181,740; products, $467,380.

Grindstones.

Mitchell J. E., 310 York avenue, Philadelphia. 2000 tons on hand. Founded in 1810.

Grindstone Fixtures.

Mitchell J. Henry, 602 Beach street, Phila., Shafts, Cast-iron Boxes, etc.

Grindstones.—Establishments, 10; steam-engines, 6 (horse-power, 136); hands employed, 236 (men, 226; youths, 10); capital, $83,800; wages, $59,600; materials, $33,853; products, $163,700.

Grocers (Wholesale).

Conrow T. & Co., 5 North Water street, 725.

The term "groceries" comprehends such a variety of articles that it is impossible to give in our limited space full *details* of the business. The imports of sugar and molasses, coffee and tea for 1872–3 and 1873–4 will be found in the article on COMMERCE AND NAVIGATION, page 470. The following personal statistics are found in the census: *Traders and Dealers in Groceries,* 74,410 (males, 73,213; females, 1197); ages, 16 to 59, 71,676; 60 and over, 2734; born in the United States, 46,226; Germany, 13,456; Ireland, 8879; England and Wales, 2075; Scotland, 444; British America, 690; Sweden, Norway and Denmark, 232; France, 999; China and Japan, 124.

Guns, Pistols, etc.

Grubb Joseph C. & Co., 712 Market street, 753.

Firearms.—Establishments, 46; steam-engines, 27 (horse-power, 1323); water-wheels, 17 (horse-power, 365); hands employed, 3297 (men, 3152; women, 33; youths, 112); capital, $4,016,902; wages, $2,490,774; materials, $1,100,999; products, $5,582,258. *Gun- and Locksmiths,* 8184 (males, 8151; women, 33); ages, 10 to 15, 77; 16 to 59, 7709; 60 and

over, 398; born in the United States, 4703; Germany, 2091; Ireland, 453; England and Wales, 452; Scotland, 51; British America, 63; Sweden, Norway and Denmark, 49; France, 141; China and Japan, 2.

Hair Jewelry and Hair-Work.

Neher Charles, 612 Arch street, 748.

Schmitt Madam K., 222 North Eighth street, 788.

Wimpfheimer Mrs. C., 320 Market street, 835.

Special statistics of hair jewelry for the whole country were not given in 1870. For Philadelphia the figures were as follows: Establishments, 3; hands employed, 7 (women); capital, $12,500; wages, $1800; materials, $3400; products, $7625. *Hair-Work.*—Establishments in the United States in 1870, 230; steam-engines, 3 (horse-power, 55); water-wheel, 1 (horse-power, 7); hands employed, 1651 (men, 597; women, 940; youths, 114); capital, $766,875; wages, $416,294; materials, $883,421; products, $1,971,839.

Hardware.

Clamer Francis J. & Co., 909 North Ninth street, 740.

Craft Edwin & Co., 905 Market street, 827.

Enterprise Manufacturing Company of Pennsylvania, Henry Asbury, president, American and Dauphin streets, 711.

Haase John A., 116 Van Horn, 743.

Rose W. & Brothers, Thirty-sixth and Filbert streets, 714.

Vanhorn James S. & Co., Ridge and Girard avenues, 810.

Hardware.—Establishments, 580; steam-engines, 243 (horse-power, 5616); water-wheels, 155 (horse-power, 3398); hands employed, 14,236 (men, 11,713; women, 1179; youths, 1344); capital, $13,869,315; wages, $6,845,640; materials, $9,188,044; products, $22,237,329.

Harness and Saddlery.

Sage B. V., 3142 Market street, 724.

Young J. H., 35½ North Ninth street, 762.

Saddlery and Harness.—Establishments, 7607; steam-engines, 12 (horse-power, 172); water-wheels, 3 (horse-power, 43); hands employed, 23,557 (men, 22,716; women, 375; youths, 466); capital, $13,935,961; wages, $7,046,207; materials, $16,068,310; products, $32,709,981. *Saddlery Hardware.*—Establishments, 155; steam-engines, 29 (horse-power, 689); water-wheels, 13 (horse-power, 260); hands employed, 2566 (men, 2129; women, 184; youths, 253); capital, $1,482,225; wages, $1,062,059; materials, $1,257,947; products, $3,227,123. *Harness- and Saddle-makers,* 32,817 (males, 32,767; females, 50); ages, 10 to 15, 287; 16 to 59, 31,543; 60 and over, 987; born in the United States, 24,568; Germany, 3868;

Ireland, 1747; England and Wales, 811; Scotland, 161; British America, 715; Sweden, Norway and Denmark, 161; France, 226; China or Japan, 1.

Hat-Block Manufacturers.

Cundey E. & Brother, 848 North Fourth street, 724.

Nonnenberger Christian, 323 Race street, 732.

Hat Materials.—Establishments, 62; steam-engines, 11 (horse-power, 433); water-wheels, 8 (horse-power, 138); hands employed, 1014 (men, 722; women, 146; youths, 146); capital, $1,168,635; wages, $537,287; materials, $2,074,959; products, $3,225,763.

Hats and Caps, etc.

Brylawski M., manufacturer, 16 North Third street, 835.

Damai E. (retail), 143 Arch street, 834.

Laing C., Sixth and Chestnut streets, 831.

Hats and Caps.—Establishments, 483; steam-engines, 64 (horse-power, 2112); water-wheels, 10 (horse-power, 186); hands employed, 16,173 (men, 8847; women, 6301; youths, 1025); capital, $6,489,571; wages, $6,574,490; materials, $12,262,107; products, $24,848,167. *Hat- and Cap-makers,* 12,625 (males, 9275; females, 3350); ages, 10 to 15, 450; 16 to 59, 11,815; 60 and over, 360; born in the United States, 8829; Germany, 1154; Ireland, 1727; England and Wales, 518; Scotland, 74; British America, 87; Sweden, Norway and Denmark, 17; France, 93; China and Japan, 2. *Traders and Dealers in Hats and Caps,* 3375 (males, 3360; females, 15); ages, 16 to 59, 3161; 60 and over, 214; born in the United States, 2355; Germany, 523; Ireland, 231; England and Wales, 124; Scotland, 20; British America, 16; Sweden, Norway and Denmark, 7; France, 46; China or Japan, 1.

Heaters, Ranges, Furnaces, etc.

Borden J. & Brother, 637 North Nineteenth street, 732.

Harrison William H. & Brother, 1435 Chestnut street, 783.

McCoy & Roberts, 1208 and 1210 Market street, 837.

Moseley Thos. W. H. (Radiators), 147 South Fourth street, 851 and 852.

Nixon George & Son, N. E. corner of Sixteenth and Vine streets.

Rand A. W., 124 North Sixth street, 797.

Reynolds J. & Son, N. W. corner of Thirteenth and Filbert streets, 770.

Heating Apparatus.—Establishments, 59; steam-engines, 18 (horse-power, 239); hands employed, 1141 (men, 1121; youths, 20); capital, $1,605,830; wages, $853,516; materials, $1,424,345; products, $3,425,150. See also STOVES, RANGES, etc.

Hides and Tallow.

(For statistics of LEATHER, tanned and curried, see page 615.)

Schollenberger William & Sons, Mascher and Oxford streets, 778.

Establishments, 12; steam-engines, 6 (horse-power, 84); hands employed, 138 (men, 135; woman, 1; youths, 2); capital, $164,000; wages, $39,000; materials, $526,754; products, $743,040.

Grease and Tallow.—Establishments, 62; steam-engines, 13 (horse-power, 233); hands employed, 442 (men, 359; women, 62; youths, 21); capital, $841,980; wages, $184,787; materials, $5,114,868; products, $6,035,845.

Hides and Skins, Sumac, etc.

Keen James S., 115 Margaretta street, 847.

Traders and Dealers in Leather, Hides and Skins, 2261 (males, 2257; females, 4); ages, 16 to 59, 2171; 60 and over, 90; born in the United States, 1542; Germany, 433; Ireland, 109; England and Wales, 86; Scotland, 17; British America, 17; Sweden, Norway and Denmark, 3; France, 29.

Hose Manufacturers (Leather).

(For statistics see BELTING AND HOSE.)

Eckfeldt & Richie, 418 North Third street, 720.

Hosiery.

(See SHAWLS, HOSIERY and KNIT GOODS.)

Hotel and House Enunciators.

Moseley Thomas W. H., 147 South Fourth street, 851 and 852.

Hotel-keepers, 26,394 (males, 25,529; females, 865); ages, 16 to 59, 24,901; 60 and over, 1493; born in the United States, 19,416; Germany, 3037; Ireland, 1915; England and Wales, 831; Scotland, 118; British America, 384; Sweden, Norway and Denmark, 104; France, 239; China and Japan, 19. *Clerks in Hotels and Restaurants*, 5243 (males, 5166; females, 77); ages, 10 to 15, 49; 16 to 59, 5147; 60 and over, 47; born in the United States, 4467; Germany, 260; Ireland, 210; England and Wales, 101; Scotland, 14; British America, 83; Sweden, Norway and Denmark, 17; France, 27. *Employés of Hotels and Restaurants, (not clerks)*, 23,438 (males, 17,139; females, 6299); ages, 10 to 15, 921; 16 to 59, 22,263; 60 and over, 254; born in the United States, 15,598; Germany, 2145; Ireland, 3762; England and Wales, 504; Scotland, 121; British America, 305; Sweden, Norway and Denmark, 197; France, 254; China and Japan, 98.

House-Furnishing Goods.

Christ J. H. & Brothers, 824 Arch street, 745.
Craft Edwin & Co., 905 Market street, 827.
Williams Isaac S. & Co., 728 Market street, 744.

Wooden Ware.—Establishments, 269; steam-engines, 76 (horse-power, 2293); water-wheels, 165 (horse-power, 3366); hands employed, 3169 (men, 2708; women, 67; youths, 394); capital, $2,814,592; wages, $1,210,268; materials, $1,623,694; products, $4,142,124.

(For the remaining statistics, see CUTLERY; TIN, COPPER AND SHEET-IRON WARE and the appropriate headings of other leading articles in this somewhat comprehensive business.)

Ice Cream Freezers.

Blatchley Charles G., 506 Commerce street, 721.

Ice Cream Restaurants.

Burns & Son, 133 South Fifteenth street, 756.
Lipp H. C. & Brother, 217 North Ninth street, 717.
Mosebach H., Eleventh and Poplar streets, 839.

Though ice cream is an American invention, special statistics were not given in the census, and the only figures obtainable are the following personal statistics, which include proprietors of eating-houses. *Restaurant-keepers*, 35,185 (males, 34,542; females, 643); ages, 16 to 59, 34,457; 60 and over, 728; born in the United States, 14,020; Germany, 11,877; Ireland, 4220; England and Wales, 1241; Scotland, 201; British America, 628; Sweden, Norway and Denmark, 328; France, 973; China and Japan, 66.

India-rubber and Elastic Goods.

Establishments, 56; steam-engines, 49 (horse-power, 4412); water-wheels, 35 (horse-power, 1864); hands employed, 6025 (men, 3030; women, 2649; youths, 346); capital, $7,486,600; wages, $2,559,877; materials, $7,434,742; products, $14,566,374.

Ink Manufacturers.

Wright J. K. & Co. (printing), Twenty-sixth and Hare streets, 729.
Bush I. A. (writing), 214 South Tenth street, 826.
Knapp C. F. & Son (writing), 510½ Arch street, 789.
Stump F. & Co., 140 South Third street, 792.

Printing-ink.—Establishments, 16; steam-engines, 13 (horse-power, 248); water-wheels, 2 (horse-power, 55); hands employed, 155 (men, 152; youths, 3); capital, $343,300; wages, $100,187; materials, $353,711; products, $600,329. *Writing-ink.*—Establishments, 25; steam-engine, 1 (horse-

power, 8); hands employed, 160 (men, 101; women, 32; youths, 27); capital, $276,230; wages, $45,962; materials, $176,399; products, $366,473.

Insurance Companies (Fire).

Pennsylvania Insurance Co., 510 Walnut street, 798.

Number of Fire Insurance Companies in 1875, 87; gross assets, $69,469,397; fire risks written in 1874, $2,416,963,130; marine and inland risks, $421,584,527; amount at risk January 1, 1875, $2,527,020,865; total income in 1874, $38,243,986; foreign companies doing business in the United States, 14; risks in 1874, $827,520,160; total amount at risk January 1, 1875, $3,354,541,025.

Insurance Companies (Life).

American Life Insurance Co., Fourth and Walnut streets, 703.

Penn Mutual Life Insurance Co., 921 Chestnut street, 755.

Number of Life Insurance Companies in 1875, 59; number of policies in force, 866,690; amount insured, $2,140,565,481; average amount of each policy in force, $2469; gross assets January 1, 1875, $401,706,301.

Iron Broker.

Etting Edward J., 230 South Third street, 846.

Iron Founders.

(For statistics of Iron see pages 186, 613, 614.)

Starr Jesse W. & Son, 435 and 437 Chestnut street, 726.

Wharton Joseph S. Lovering, Fifteenth and Wood streets, 731.

Iron Galvanizing and Corrugating.

Chase Frederic, 2425 and 2427 South street, 740.

McCullough Iron Co., Sixteenth and Washington avenue, 730.

Marshall Bros. & Co., 24 Girard avenue, 847.

Moseley Thos. W. H., 147 South Fourth street, 851 and 852.

The Philadelphia Galvanizing Co., 2130 Race street, 735.

Galvanizing.—Establishments, 9; steam-engines, 4 (horse-power, 48); hands employed, 146 (men, 141; youths, 5); capital, $206,000; wages, $88,650; materials, $584,996; products, $796,326. Special statistics of *Galvanized and Corrugated* iron for Philadelphia, in 1870: Establishments, 5; using steam, 5 (horse-power, 88); hands employed, 136 (men, 131; youths, 5); capital, $279,000; wages, $82,950; materials, $448,796; products, $794,526.

Iron Manufacturers.

McCullough Iron Co., Sixteenth and Washington avenue, 730.

Moseley Thos. W. H. (Iron Screw Piles), 147 South Fourth street, 851.
Musconetcong Iron Works, A. Pardee & Co., 303 Walnut street, 768.
Starr Jesse W. & Son, 435 and 437 Chestnut street, 726.

Iron Pipe Manufacturers.

Girard Tube Works and Iron Co., 42 North Fifth street, 828.

Iron Pipe (wrought).—Establishments, 22; steam-engines, 26 (horse-power, 1715); water-wheel, 1 (horse-power, 5); hands employed, 2129 (men, 1988; youths, 141); capital, $5,311,095; wages, $1,155,910; materials, $4,872,907; products, $7,369,194.

Iron Railing, Fences, Doors, Vases.

Watson & Kelso, 46 and 48 North Front street, 798.
Wood Robert & Co., 1136 Ridge avenue, 700.

Iron Railing (wrought).—Establishments, 74; steam-engines, 27 (horse-power, 197); water-wheel, 1 (horse-power, 3); hands employed, 630 (men, 605; youths, 25); capital, $405,200; wages, $321,101; materials, $533,116; products, $1,268,756.

Iron Railing (cast).—Number of feet made in 1870, 1,530,581.

Jewellers.

(See WATCHES, JEWELRY, etc.)

Lampblack Manufacturers.

Martin L. & Co., 118 Walnut street, 703.

Establishments in 1870, 9; steam-engines, 3 (horse-power, 43); hands employed, 56; capital, $93,000; wages, $20,734; materials, $107,565; products, $193,800. Corrected statistics of Philadelphia in 1870: Establishments, 4; hands employed, 36 (men, 27; youths, 9); capital, $183,000; wages, $30,900; materials, $65,350; products, $117,700.

Lamp and Lantern Manufacturers.

Wilhelm & Neumann, 919 and 921 Race street, 734.

Lamps, Lanterns and Locomotive Head-lights.—Establishments, 40; steam-engines, 16 (horse-power, 164); water-wheel, 1 (horse-power, 10); hands employed, 558 (men, 490; women, 36; youths, 32); capital, $689,300; wages, $286,843; materials, $403,295; products, $995,289.

Lapidary.

Bohrer William, Fourth and Chestnut streets, 779.

Lapidary Work.—Establishments, 13; steam-engine, 1 (horse-power, 10); water-wheels, 2 (horse-power, 22); hands employed, 88 (men, 81; women, 5; youths, 2); capital, $34,400; wages, $38,800; materials, $37,184; products, $107,300.

Last Manufacturer.

Dewees Peter, 113 and 115 Callowhill street, 739.

Lasts.—Establishments, 60; steam-engines, 32 (horse-power, 465); water-wheels, 10 (horse-power, 180); hands employed, 510 (men, 484; women, 2; youths, 24); capital, $330,800; wages, $262,212; materials, $137,657; products, $665,703.

Laundry.

Tardif William, Jr., 220 North Second street, 826.

Launderers and Laundresses, 60,906 (males, 5297; females, 55,609); ages, 10 to 15, 548; 16 to 59, 57,964; 60 and over, 2394; born in the United States, 40,814; Germany, 2761; Ireland, 11,530; England and Wales, 601; Scotland, 205; British America, 331; Sweden, Norway and Denmark, 170; France, 327; China and Japan, 3653.

Leather and Findings.

(For statistics of Leather Dealers see HIDES AND SKINS, and for those of Leather see AMERICAN MANUFACTURES, page 615.)

Greiner J. F., 221 North Fourth street, 738.

Ryan Joseph, 236 North Fourth street, 749.

Schmidt John G., 1234 and 1236 Poplar street, 732.

Boot- and Shoe-findings.—Establishments, 271; steam-engines, 32 (horse-power, 310); water-wheels, 14 (horse-power, 223); hands employed, 2773 (men, 1045; women, 1442; youths, 286); capital, $858,560; wages, $792,957; materials, $1,817,028; products, $3,389,091.

Lime Dealers and Manufacturers.

Irvine & Carty, Twenty-third and Spring Garden streets, 736.

Lime.—Establishments, 1001; steam-engines, 17 (horse-power, 425); water-wheels, 3 (horse-power, 56); hands employed, 6450 (men, 6402; women, 3; youths, 45); capital, $5,344,154; wages, $1,936,158; materials, $4,458,542; products, $8,917,405.

Lithographers.

Citti Lewis F. & Co., Seventh and Market streets, 844.

Taylor & Smith, 113 South Fourth street, 754.

Toudy H. J. & Co., 623 Commerce street, 790.

Statistics of lithography were not given for the whole country in 1870. The figures for Philadelphia in 1870 were as follows: Establishments, 30; using steam, 3 (horse-power, 31); hands employed, 279 (men, 243; women, 22; youths, 14); capital, $509,200; wages, $201,495; materials, $138,058; products, $628,135.

Livery Stables.

Delaplaine James L., Seventeenth and Cherry streets, 824.
Doble W. H. & Son, 1424 South Penn square, 772.

Livery Stable Keepers, 8504 (males, 8493; women, 11); ages, 16 to 59, 8278; 60 and over, 226; born in the United States, 7087; Germany, 427; Ireland, 545; England and Wales, 182; Scotland, 34; British America, 126; Sweden, Norway and Denmark, 32; France, 28. For statistics of horses, see pages 572, 573, 574, 576.

Machinists.

Carnell F. L. & D. R., 1844 Germantown avenue, 724.
Chambers, Bro. & Co., Fifty-second street and Lancaster avenue, 803.
Dienelt & Eisenhardt, Seventeenth street and Fairmount avenue, 811.
Ferrell and Jones, 2218 and 2220 Race street, 832.
Flanders L. B., Eleventh and Hamilton streets, 829.
Mills Thos. & Bro., Eighth and Thompson streets, 817.
Nittinger A., Jr., 828 North Fourth street, 759.
Riehle Brothers, Philadelphia, 798.
Quimby B. F., fine machinery, 224 South Fifth street, 743.
Shearman & Hilles, 309 and 311 Arch street, 824.
Smith Charles H., 135 North Third street, 744.
Teal C. A. & W. L., 3029 Chestnut street, 694.
Walker Joseph, 915 Market street, 888.
Wharton J. S. Lovering, Fifteenth & Wood streets, 731.
Snyder Henry & Co., 43 South Fourth street, 777.

Machinists' Tools.

Van Haagen C. & Co., 2341 and 2343 Callowhill street, 745.

Machinery (not specified).—Establishments, 1737; steam-engines, 981 (horse-power, 17,429); water-wheels, 356 (horse-power, 6707); hands employed, 30,780 (men, 30,183; women, 93; youths, 505); capital, $40,383,960; wages, $17,812,493; materials, $22,575,692; products, $54,429,634. *Machinists*, 54,755; ages, 10 to 15, 209; 16 to 59, 53,215; 60 and over, 1331; born in the United States, 35,432; Germany, 5016; Ireland, 4833; England and Wales, 5175; Scotland, 1741; British America, 1097; Sweden, Norway and Denmark, 299; France, 499; China and Japan, 6.

Marble Columns and Pedestals.

Allen James T. & Co., 25 North Seventeenth street, 831.

Marble Dealers and Workers.

Prince S. F., 2214 Chestnut street, 839.
Rightmire W. H., Camden, N. J., 772, 773.

Struthers & Sons, 1022 Market street, 715.
Van Gunden & Young, 1221 Spring Garden street, 712.
Waterhouse John, 1817 Arch street, 808.

Marbleized Slate Mantels.

French E. D. & W. A., Third and Vine streets, Camden, N. J., 707.
Kimes J. B. & Co., 1215 Race street, 734.
Wilson & Miller, 1210 Ridge avenue, 706.

Marble- and Stone-work (not specified).—Establishments, 923; steam-engines, 141 (horse-power, 4231); water-wheels, 34 (horse-power, 1406); hands employed, 13,190 (men, 12,974; women, 12; youths, 204); capital, $11,287,677; wages, $7,601,471; materials, $8,034,858; products, $21,316,860. *Marble Monuments and Tombstones.*—Establishments, 1049; steam-engines, 43 (horse-power, 853); water-wheels, 13 (horse-power, 135); hands employed, 5719 (men, 5650; women, 8; youths, 61); capital, $4,942,063; wages, $2,490,296; materials, $3,709,518; products, $8,916,654. *Marble- and Stone-cutters*, 25,831; ages, 10 to 15, 84; 16 to 59, 25,155; 60 and over, 592; born in the United States, 11,923; Germany, 3491; Ireland, 6237; England and Wales, 1709; Scotland, 966; British America, 766; Sweden, Norway and Denmark, 114; France, 212.

Masons, Brick and Stone.

Number in 1870, 89,710; ages, 10 to 15, 251; 16 to 59, 85,521; 60 and over, 3938; born in the United States, 55,147; Germany, 11,606; Ireland, 13,537; England and Wales, 4480; Scotland, 989; British America, 1500; Sweden, Norway and Denmark, 703; France, 475; China and Japan, 23. *Masonry, Brick and Stone.*—Establishments, 2264; steam-engines, 4 (horse-power, 32); hands employed, 11,043 (men, 10,931; youths, 112); capital, $2,546,425; wages, $4,271,700; materials, $7,015,782; products, $14,587,185.

Masonic and Society Marks, etc.

(For statistics see under MILITARY GOODS and REGALIA.)

Bedichimer I., 160 North Second street, 762 and 800.
Somerset Jacob, 722 Chestnut street, 832.

Match Manufacturers.

Smith Ephraim K., 919 St. John street, 736.

Matches.—Establishments, 75; steam-engines, 29 (horse-power, 359); water-wheels, 19 (horse-power, 449); hands employed, 2556 (men, 609; women, 1089; youths, 858); capital, $1,521,802; wages, $616,714; materials, $1,179,666; products, $3,540,008.

Mathematical and Philosophical Instruments.

Edgerton N. H., 924 Chestnut street, 830.
McAllister William Y., 728 Chestnut street, front of book.
Queen Jas. W. & Co., 924 Chestnut street, 818.
Young W. J. & Sons, 43 North Seventh street, 778.

Instruments, Professional and Scientific.—Establishments, 135; steam-engines, 32 (horse-power, 207); water-wheels, 4 (horse-power, 125); hands employed, 1173 (men, 1049; women, 58; youths, 66); capital, $1,838,391; wages, $649,921; materials, $417,165; products, $1,724,257.

Metallic Cap Manufacturers and Tin Foil Dealers.

Hilgert's John Sons, 1009 and 1011 North Fifth street, 739.

Metallic Sign Manufacturers.

The Wells & Hope Co., 918, 920 and 922 Vine street, 786.

Military and Regalia Goods.

Horstmann Brothers & Co., Philadelphia, New York and Paris, 802.
Migeod J. M. & Son, 510 Race street, 818.
Naylor Charles, 54 North Fifth street, 816.

Military Goods.—Establishments, 6; steam-engines, 3 (horse-power, 24); hands employed, 91 (men, 69; women, 12; youths, 10); capital, $98,200; wages, $66,426; materials, $141,550; products, $282,630. *Regalia and Society Banners and Emblems.*—Establishments, 29; steam-engines, 5 (horse-power, 31); hands employed, 410 (men, 150; women, 237; youths, 23); capital, $251,650; wages, $114,702; materials, $307,296; products, $626,476. *Military Goods and Regalia* (corrected statistics for Philadelphia).—Establishments, 8; using steam, 4 (horse-power, 22); hands employed, 172 (men, 37; women, 130; youths, 5); capital, $241,200; wages, $53,400; materials, $99,410; products, $259,800.

Milk Dealers.

Jones Jos. L., 603 North Eighth street, 717.
Woolman Edward W., 44 North Thirty-eighth street, 713.

Number of gallons of milk sold in 1870, 235,500,599. Leading States: New York, 135,775,919 gallons; Ohio, 22,275,344; Massachusetts, 15,284,057; Pennsylvania, 14,411,729. Pounds of cheese made in 1870, 53,492,153. Leading States: New York, 22,769,964; Ohio, 8,169,486. Pounds of cheese made in 1860, 103,663,927, and in 1850, 105,535,893. For exports of cheese in various years, showing the recent progress in its manufacture, see page 200. Pounds of butter made in 1870, 514,092,683; in 1860, 459,681,372; and in 1850, 313,345,306. Leading States in 1870: New York, 107,147,526 pounds; Pennsylvania, 60,834,644; Ohio, 50,266,372.

Millinery and Fancy Goods.

(Statistics of Women's Clothing will be found under Clothiers.)

Binder Mrs. M. A., 1101 Chestnut street, 761.

Millinery.—Establishments, 1668; steam-engines, 4 (horse-power, 18); hands employed, 7205 (men, 864; women, 6106; youths, 235); capital, $2,425,926; wages, $1,156,531; materials, $3,365,132; products, $6,513,222. *Milliners, Dress- and Mantua-Makers,* 92,084 (males, 1604; females, 90,480); ages, 10 to 15, 1759; 16 to 59, 89,509; 60 and over, 816; born in the United States, 72,505; Germany, 3541; Ireland, 8578; England and Wales, 2894; Scotland, 687; British America, 2468; Sweden, Norway and Denmark, 197; France, 526; China and Japan, 20.

Mince Meat.

Atmore & Son, 136 South Front street, 695.

Anderson & Campbell, Camden, N. J., 791.

Conrow T. & Co., 5 North Water street, 725.

Food Preparations (animal).—Establishments, 85; steam-engines, 32 (horse-power, 426); water-wheels, 5 (horse-power, 87); hands employed, 582 (men, 512; women, 55; youths, 15); capital, $672,656; wages, $276,437; materials, $1,548,480; products, $2,328,790. *Mince Meat* (corrected statistics for Philadelphia in 1870).—Establishments, 3; using steam, 2 (horse-power, 12); hands employed, 52 (men, 31; women 21); capital, $50,000; wages, $19,250; materials, $116,840; products, $161,000.

Morocco Manufacturers.

Adams & Keen, 934 St. John street, 725.

Bockius C., S. E. corner of St. John and Willow streets, 783.

Deemer's John Sons, 147 and 149 Margaretta street, 714.

Eveland D., 215 Willow street, 705.

Frank Gottlieb, 149 Willow street, 747 and 831.

Hummel G. W. & Co., 125 Margaretta, 756.

Hummel J. M. & Sons, 955 North Third and 970 Canal streets, 720.

Nevil Joseph & Sons, 144 Margaretta street, 712.

Schollenberger William & Sons, Oxford corner of Mascher, 778.

Schumann Charles, 1724 North Fifth street, 786.

Schumann F. & Son, 1810 North Eighth street, 814.

Schumann L. & A., 1027 Canal street, 747.

Stewart William R. & Brother, 435 and 437 York avenue, 712.

Morocco.—Establishments, 113; steam-engines, 48 (horse-power, 683); water-wheels, 3 (horse-power, 16); hands employed, 3006 (men, 2740; women, 182; youths, 84); capital, $3,854,072; wages, $1,678,226; materials, $6,623,066; products, $9,997,460. *Patent and Enamelled Leather.*—

Establishments, 26; steam-engines, 14 (horse-power, 354); water-wheel, 1 (horse-power, 45); hands employed, 528 (men, 509; youths, 19); capital, $903,000; wages, $341,445; materials, $3,211,749; products, $4,018,115.

Musical Boxes, Magic Lanterns, etc.

Edgerton N. H., 924 Chestnut street, 830.

Harbach Theodore J., 809 Filbert street, 708.

McAllister William Y., 728 Chestnut street, front of book.

Musical Instruments (not specified).—Establishments, 83; steam-engines, 10 (horse-power, 207); water-wheels, 19 (horse-power, 355); hands employed, 1059 (men, 1019; women, 21; youths, 19); capital, $1,351,600; wages, $631,634; materials, $932,637; products, $2,019,464.

Nails and Spikes.

Nails and Spikes, Cut and Wrought.—Establishments, 142; steam-engines, 101 (horse-power, 10,775); water-wheels, 65 (horse-power, 2503); hands employed, 7770 (men, 6062; women, 381; youths, 1327); capital, $9,091,912; wages, $3,961,172; materials, $18,792,383; products, $24,823,996.

Newspapers.

The Daily Graphic, New York and Philadelphia, 870.

Newspapers.—Establishments, 1199; steam-engines, 302 (horse-power, 3135); water-wheels, 9 (horse-power, 74); hands employed, 13,130 (men, 11,343; women, 718; youths, 1069); capital, $14,947,887; wages, $8,168,515; materials, $8,709,632; products, $25,393,029. Corrected statistics for Philadelphia in 1870.—Establishments, 43; using steam, 28 (horse-power, 399); number of presses, 121; hands employed, 1254 (men, 1199; women, 20; youths, 35); capital, $3,472,000; wages, $1,142,959; materials, $1,375,333; products, $4,297,173. See also article on THE PRESS, pages 475–480.

Notions, Trimmings, White Goods and Hosiery.

Lanning J. P., Fourth and Spruce streets and 1637 Chestnut street, 705.

Oil Manufacturers.

(For PETROLEUM see pages 186–188.)

Hulburt & Co., 137 Arch street, 735.

Locke Z. & Co., 1126 Market street, 775.

Oil (animal).—Establishments, 58; steam-engines, 24 (horse-power, 396); hands employed, 543 (men, 464; women, 45; youths, 34); capital, $2,072,532; wages, $298,975; materials, $7,582,576; products, $9,728,667. *Oil (fish).*—Establishments, 101; steam-engines, 57 (horse-power, 1081); water-wheels, 2 (horse-power, 30); hands employed, 1487 (men, 1468;

women, 12; youths, 7); capital, $1,490,131; wages, $277,895; materials, $2,782,361; products, $3,993,139. *Cotton-seed Oil.*—Establishments, 26; steam-engines, 21 (horse-power, 1142); water-wheels, 2 (horse-power, 65); hands employed, 664 (men, 639; women, 10; youths, 15); capital, $1,225,-350; wages, $292,032; materials, $1,333,631; products, $2,205,610.

Organs (Cottage).

Bruce E. M. & Co., 1308 Chestnut street, 699.

Melodeons, House Organs and Materials.—Establishments, 22; steam-engines, 7 (horse-power, 135); water-wheels, 2 (horse-power, 23); hands employed, 401 (men, 393; women, 8); capital, $408,000; wages, $264,485; materials, $233,767; products, $596,685.

Organ Builders.

Buffington Joseph, 131 South Eleventh street, 844.

Nicholls Reuben, 78 and 80 Laurel, 814.

Organs and Materials.—Establishments, 76; steam-engines, 19 (horse-power, 328); water-wheels, 4 (horse-power, 58); hands employed, 1566 (men, 1535; women, 20; youths, 11); capital, $1,775,850; wages, $1,139,-780; materials, $743,351; products, $2,960,165.

Opticians.

McAllister Wm. Y., 728 Chestnut street, front of book.

Queen Jas. W. & Co., 924 Chestnut street, 818.

Spectacles and Eye-glasses.—Establishments, 31; steam-engines, 9 (horse-power, 51); hands employed, 258 (men, 237; women, 10; youths, 11); capital, $183,825; wages, $133,555; materials, $183,830; products, $429,859.

Packing—Steam and Hydraulic.

Glanding Jas. & Co., 113 and 115 Queen street, 746.

Painters—House and Sign.

Alburger & Son, 1249 North Second street, 740.

Bevan D., 1725 Chestnut street, 838.

Chapman Joseph, 530 North Tenth street, 708.

Huneker & Brant, 219 Arch street, 734.

Maxwell John, 421 North Second street, 743.

Painters and Varnishers, 85,123 (males, 85,070; females, 53); ages, 10 to 15, 837; 16 to 59, 82,703; 60 and over, 1583; born in the United States, 65,226; Germany, 6736; Ireland, 4383; England and Wales, 4200; Scotland, 745; British America, 1408; Sweden, Norway and Denmark, 829; France, 481; China and Japan, 8. *Painting.*—Establishments, 3040;

steam-engines, 3 (horse-power, 19); hands employed, 10,964 (men, 10,728; women, 28; youths, 8); capital, $2,797,306; wages, $4,169,839; materials, $4,990,475; products, $13,244,498.

Paints, Oils, etc.

French E. D. & W. A., Third and Vine streets, Camden, N. J., 707.
Felton, Rau & Sibley, 138 and 140 North Fourth street, 754.
Harrison Brothers & Co., 105 South Front street, 704.
Lewis John T. & Brothers, 231 South Front street, 781.
Martin L. & Co., 118 Walnut street, 703.
Shoemaker Robert & Co., N. E. corner Fourth and Race streets, 728.
Wetherill & Bro., Thirty-first street below Chestnut, 797.
Witmer D. L. & Bro., Fifth and Germantown avenue, 786.

Paints (not specified).—Establishments, 68; steam-engines, 57 (horse-power, 1731); water-wheels, 9 (horse-power, 365); hands employed, 1008 (men, 968; women, 9; youths, 31); capital, $3,742,150; wages, $550,463; materials, $3,988,106; products, $5,720,758. *Paints, Lead and Zinc.*—Establishments, 75; steam-engines, 83 (horse-power, 5054); water-wheels, 10 (horse-power, 242); hands employed, 1932 (men, 1865; women, 29; youths, 38); capital, $7,414,250; wages, $1,016,574; materials, $7,480,622; products, $11,211,647.

Paper-Box Manufacturers.

American Paper-Box Company, 213–17 North Fourth street, 771.
Kerr N. M. & Co., Philadelphia, New York and Chicago, 765.
Schoettle F., 312 and 314 Branch street, 736.

Paper Boxes.—Establishments, 234; steam-engines, 16 (horse-power, 122); water-wheels, 9 (horse-power, 177); hands employed, 4486 (men, 1104; women, 3062; youths, 320); capital, $1,148,025; wages, $1,222,338; materials, $1,553,777; products, $3,917,159.

Paper-Cutting Machines.

Brown & Carver, 614 Filbert, 804, 805.
Riehl M. & Sons, 1246 to 1250 North Sixteenth street, 820.

Paper-Folding Machines.

(For statistics see MACHINERY.)

Chambers, Bro. & Co., Fifty-second street and Lancaster avenue, 803.

Paper Hangings.

Newland & Son, 52 North Ninth street, 743.
Thompson George, 259 South Fourth street, 705.

Paper-Hanging Manufacturers.

Wilson & Fenimores, Eighteenth street and Washington avenue, 749.

Paper Hangings.—Establishments, 15; steam-engines, 18 (horse-power, 348); water-wheel, 1 (horse-power, 40); hands employed, 869 (men, 558; women, 145; youths, 166); capital, $1,415,500; wages, $329,267; materials, $1,315,106; products, $2,165,510.

Paper Manufacturers (Fancy Colored, Glazed, etc.).

Beck Charles, 16 South Sixth street, 720.

Restein Brothers, 1218 South Eighth street, 839.

Paper (not specified).—Establishments, 68; steam-engines, 57 (horse-power, 1731); water-wheels, 9 (horse-power, 365); hands employed, 1008; men, 968; women, 9; youths, 31); capital, $3,742,150; wages, $550,463; materials, $3,988,106; products, $5,720,758.

Paper Manufacturers and Dealers.

Magarge Charles & Co., 32 South Sixth street, 727.

Paper, Printing.—Establishments, 235; steam-engines, 144 (horse-power, 5269); water-wheels, 454 (horse-power, 17,354); hands employed, 8167 (men, 5107; women, 2553; youths, 507); capital, $16,771,920; wages, $3,400,038; materials, $16,120,363; products, $25,200,417. *Paper, Wrapping.*—Establishments, 225; steam-engines, 67 (horse-power, 5572); water-wheels, 352 (horse-power, 11,652); hands employed, 3111 (men, 2462; women, 475; youths, 174); capital, $6,276,600; wages, $1,249,821; materials, $4,420,240; products, $7,706,317. *Paper, Writing.*—Establishments, 46; steam-engines, 10 (horse-power, 731); water-wheels, 146 (horse-power, 6144); hands employed, 3862 (men, 1450; women, 2384; youths, 28); capital, $6,314,674; wages, $1,470,446; materials, $6,009,751; products, $9,363,384.

Patent Attorneys.

Howson H. & Son, 119 South Fourth street, and Washington, 737.

Lawyers, 40,736 (males, 40,731; females, 5); ages, 16 to 59, 38,948; 60 and over, 1788; born in the United States, 38,412; Germany, 513; Ireland, 730; England and Wales, 443; Scotland, 122; British America, 258; Sweden, Norway and Denmark, 31; France, 58.

Pattern Makers.

Haslam Wm., 812 Race street, 740.

Kile J. & Co., 450 and 452 North Twelfth, 755.

Patterns and Models.—Establishments, 165; steam-engines, 58 (horse-power, 398); water-wheels, 5 (horse-power, 25); hands employed, 867 (men,

705; women, 132; youths, 30); capital, $634,715; wages, $408,248; materials, $235,933; products, $1,211,191.

Patent Medicines.

Scheetz Jacob, corner Fifth and Race streets, 834.
Schneyer Charles, 154 and 156 Fairmount avenue, 746.
Wardle Thos., M. D., D. D., 1029 Race street, 694.

Patent Medicines and Compounds.—Establishments, 319; steam-engines, 24 (horse-power, 477); water-wheel, 1 (horse-power, 20); hands employed, 2436 (men, 1667; women, 631; youths, 138); capital, $6,667,684; wages, $1,017,795; materials, $7,319,752; products, $16,257,720.

Pavements (Artificial Stone).

Wehn Geo. H., 911 Filbert street, 758.

Paving Materials.—Establishments, 8; steam-engines, 5 (horse-power, 145); hands employed, 189 (men, 174; youths, 15); capital, $139,500; wages, $119,400; materials, $219,075; products, $447,080.

Perfumers.

Davis & Co., G. H., 1050 Germantown avenue, 724.
Hambleton Job & Son, 221 Spruce street, 735.
Knapp C. F. & Son, 510 and 510½ Arch street, 789.
Vogelbach H. A., 1716 Frankford avenue, 754.

Perfumery, Cosmetics and Fancy Soaps.—Establishments, 64; steam-engines, 8 (horse-power, 122); hands employed, 727 (men, 320; women, 371; youths, 36); capital, $1,172,900; wages, $260,415; materials, $892,219; products, $2,029,582.

Photographers.

Photographs.—Establishments, 1090; hands employed, 2800 (men, 2260; women, 452; youths, 88); capital, $1,995,280; wages, $786,702; materials, $1,094,491; products, $3,643,887.

Physicians.

(See under ELECTROPATHIC PHYSICIANS.)

Pianos and Musical Instruments.

(See MUSICAL BOXES; also, ORGANS.)

Albrecht & Co., 610 Arch street, 814.
Bruce E. M. & Co., 1308 Chestnut street, 699.
Faas A., 152 North Ninth street, 723.
Meyer C. & Sons, 722 Arch street, 710.

Pianos and Materials.—Establishments, 156; steam-engines, 36 (horse-power, 889); water-wheels, 3 (horse-power, 23); hands employed, 4141

(men, 4054; women, 19; youths, 68); capital, $6,019,311; wages, $3,071,-392; materials, $2,924,777; products, $8,329,594.

Pipe Manufacturers.

Nax & Kühn, 146 Noble street, 720.

Pipes, Tobacco.—Establishments, 31; steam-engines, 15 (horse-power, 323); water-wheel, 1 (horse-power, 15); hands employed, 481 (men, 360; women, 31; youths, 86); capital, $178,600; wages, $214,924; materials, $93,899; products, $447,330.

Plane Maker.

Colton Alfred J., S. E. corner of Fourth and Callowhill streets.

Planing Mills, Sash, Doors, etc.

Smith J. W. & Co., 2106 to 2110 Filbert street, 705.

Mustard & Hunter, 24 to 28 South Fifteenth street, 824.

Lumber, Planed.—Establishments, 1113; steam-engines, 848 (horse-power, 25,668); water-wheels, 193 (horse-power, 3651); hands employed, 13,640 (men, 13,064; women, 52; youths, 524; capital, $18,007,041; wages, $6,222,076; materials, $28,728,348; products, $42,179,702. *Sash, Doors and Blinds.*—Establishments, 1605; steam-engines, 999 (horse-power, 27,061); water-wheels, 367 (horse-power, 7758); hands employed, 20,379 (men, 19,496; women, 43; youths, 840); capital, $21,239,809; wages, $10,059,812; materials, $17,581,814; products, $36,625,806.

Plaster Paris Ornaments.

French William H., 1735 Chestnut street, 797.

Heath Thomas, 42 North Eleventh, 843.

Plasterers.

Allen James T., 25 North Seventeenth street, 831.

Reeves Joel, 705 North Eighth street, 762.

Reeves J. W. & C. H., 920 and 922 North Eighth street, 729.

Plastering.—Establishments, 691; steam-engines, 2 (horse-power, 54); water-wheels, 6 (horse-power, 80); hands employed, 2464 (men, 2404; youths, 60); capital, $353,462; wages, $900,395; materials, $907,524; products, $2,659,025.

Plasterers.—Total, 23,577; ages, 10 to 15, 109; 16 to 59, 23,025; 60 and over, 443; born in the United States, 16,811; Germany, 1580; Ireland, 3041; England and Wales, 1031; Scotland, 216; British America, 365; Sweden, Norway and Denmark, 190; France, 70; China or Japan, 1.

Plumbers and Gas-Fitters.

McFetrich John H., S. W. corner of Ninth and Walnut streets, 887.

Plumbing and Gas-fitting.—Establishments, 705; steam-engines, 36 (horse-power, 356); water-wheels, 2 (horse-power, 12); hands employed, 4783 (men, 4582; woman, 1; youths, 200); capital, $3,731,667; wages, $2,277,644; materials, $5,167,323; products, $10,394,471. *Plumbers and Gas-fitters,* 11,143; ages, 10 to 15, 72; 16 to 59, 10,974; 60 and over, 97; born in the United States, 6655; Germany, 621; Ireland, 2274; England and Wales, 876; Scotland, 412; British America, 181; Sweden, Norway and Denmark, 34; France, 34.

Pocket-Books, Portmonnaies, etc.

Brieger Charles, 339 North Fourth street, 742.

Rumpp Charles, 47 North Sixth street, 739.

Pocket-Books.—Establishments, 60; steam-engine, 1 (horse-power, 1); hands employed, 733 (men, 394; women, 293; youths, 46); capital, $351,225; wages, $293,258; materials, $467,922; products, $1,108,380.

Printers (Book and Job).

Clark John C. & Sons, 230 Dock street, 739.

George S. A. & Co. (book), 15 North Seventh street, 744.

Goodman S. W. & Co., 116 North Third street, 782.

Merrihew & Son, 135 North Third street, 764.

Job Printing.—Establishments, 609; steam-engines, 174 (horse-power, 1440); water-wheels, 4 (horse-power, 15); hands employed, 5555 (men, 4458; women, 499; youths, 598); capital, $6,007,354; wages, $2,710,234; materials, $2,966,709; products, $8,511,934. *Printers,* 39,860 (males, 38,365; females, 1495); ages, 10 to 15, 1570; 16 to 59, 37,813; 60 and over, 477; born in the United States, 31,208; Germany, 2249; Ireland, 2856; England and Wales, 1652; Scotland, 409; British America, 803; Sweden, Norway and Denmark, 122; France, 161; China and Japan, 23.

Printers (Plate).

Sartain Henry, 202 South Ninth street, 734.

Plate Printers, 231 (males, 226; females, 5); ages, 10 to 15, 2; 16 to 59, 225; 60 and over, 4; born in the United States, 172; Germany, 28; Ireland, 9; England and Wales, 12; Scotland, 6; British America, 1; France, 1.

Printing Presses.

No special statistics were given in this branch for 1870. The returns were included in those of MACHINERY (not specified).

The Bullock Printing Press Co., 738 Sansom street, 715.

Provision Dealers.

Bower John & Co., Twenty-fourth and Brown streets, 733.

Green John, S. E. corner of Norris and Howard streets, 814.

Meat, Cured and Packed (not specified).—Establishments, 17; steam-engines, 6 (horse-power, 128); hands employed, 499 (men, 257; women, 165; youths, 77); capital, $1,549,100; wages, $173,180; materials, $2,531,552; products, $3,760,802. *Beef, Packed.*—Establishments, 36; steam-engines, 15 (horse-power, 225); hands employed, 435 (men, 423; women, 4; youths, 8); capital, $496,700; wages, $111,595; materials, $1,524,680; products, $1,950,306. *Pork, Packed.*—Establishments, 206; steam-engines, 86 (horse-power, 1861); hands employed, 5551 (men, 5375; women, 22; youths, 154); capital, $20,078,987; wages, $1,722,326; materials, $46,577,864; products, $56,429,331.

Publishers.

Baker, Davis & Co., 17 and 19 South Sixth street, 827.

Barnes A. S. & Co., New York, 760.

Burley S. W., 152 South Fourth street, 793.

Publishers (Book, Map and Newspaper), 1577; ages, 16 to 59, 1537; 60 and over, 40; born in the United States, 1353; Germany, 59; Ireland, 47; England and Wales, 69; Scotland, 13; British America, 17; Sweden, Norway and Denmark, 2; France, 7. Additional statistics will be found under Booksellers and Publishers.

Pump Manufacturers (Steam-power and Hand).

Charles G. Blatchley (hand), 506 Commerce street, 721.

Enterprise Hydraulic Works, 2218 and 2220 Race street, 832.

Moseley Thomas W. H., 147 South Fourth street, 851 and 852.

Pumps.—Establishments, 465; steam-engines, 102 (horse-power, 1379); water-wheels, 52 (horse-power, 958); hands employed, 1905 (men, 1817; women, 7; youths, 81); capital, $1,755,894; wages, $663,594; materials, $970,547; products, $2,818,457. *Pump-makers*, 1672; ages, 10 to 15, 14; 16 to 59, 1564; 60 and over, 94; born in the United States, 1465; Germany, 66; Ireland, 39; England and Wales, 44; Scotland, 10; British America, 31; Sweden, Norway and Denmark, 4; France, 4.

Railroads.

North Pennsylvania Railroad, Berks and American streets, 821.

Cars, Railroad and Repairs.—Establishments, 170; steam-engines, 134 (horse-power, 5609); water-wheels, 4 (horse-power, 163); hands employed, 15,931 (men, 15,690; women, 20; youths, 221); capital, $16,632,792; wages, $9,659,992; materials, $18,117,707; products, $31,070,734. *Rail-*

road Repairing Machinery.— Establishments, 150; steam-engines, 160 (horse-power, 5760); water-wheels, 5 (horse-power, 282); hands employed, 20,015 (men, 19,886; women, 6; youths, 123); capital, $23,222,761; wages, $12,541,818; materials, $11,952,840; products, $27,565,650. *Clerks and Bookkeepers in Railroad Offices,* 7374 (males, 7364; females, 10); ages, 10 to 15, 28; 16 to 59, 7300; 60 and over, 46; born in the United States, 6387; Germany, 139; Ireland, 368; England and Wales, 257; Scotland, 74; British America, 76; Sweden, Norway and Denmark, 11; France, 16. *Employés of Street Railways (not Clerks),* 5103 (males, 5102; female, 1); ages, 10 to 15, 26; 16 to 59, 5054; 60 and over, 23; born in the United States, 3481; Germany, 577; Ireland, 763; England and Wales, 125; Scotland, 23; British America, 66; Sweden, Norway and Denmark, 13; France, 29. *Employés of Railroad Companies (not Clerks),* 154,027 (males, 153,965; females, 62); ages, 10 to 15, 874; 16 to 59, 151,589; 60 and over, 1564; born in the United States, 94,505; Germany, 7855; Ireland, 37,822; England and Wales, 3860; Scotland, 913; British America, 2857; Sweden, Norway and Denmark, 3930; France, 381; China and Japan, 568. For additional statistics see AMERICAN RAILROADS, pp. 627–632.

Razor-Strop Manufacturers.

Evans W. D. & Co., 117 South Second street, 816.

Hunt W. & Co., 605 and 607 Arch street, 705.

Reeds and Harnesses.

Miller James, Twenty-second and Hamilton streets, 702.

Reed- and Shuttle-makers, 200 (males, 194; females, 6); ages, 10 to 15, 4; 16 to 59, 189; 60 and over, 7; born in the United States, 156; Germany, 5; Ireland, 9; England and Wales, 21; Scotland, 6; British America, 1.

Roofers.

Ehret Michael, Jr., 404 Walnut street and Broad and Cumberland streets, 707.

Moseley Thomas W. H., 147 South Fourth street, 851, 852.

Thomason William J. & Bro., 108 Arch street, 844.

Roofers and Slaters, 2750; ages, 10 to 15, 27; 16 to 59, 2669; 60 and over, 54; born in the United States, 1707; Germany, 219; Ireland, 483; England and Wales, 193; Scotland, 75; British America, 38; Sweden, Norway and Denmark, 5; France, 10. *Roofing Materials.*—Establishments, 198; steam-engines, 27 (horse-power, 442); water-wheels, 15 (horse-power, 274); hands employed, 1919 (men, 1884; women, 13; youths, 22); capital, $2,448,680; wages, $883,341; materials, $1,293,116; products, $3,257,403.

Safe Manufacturers.

Farrel & Co., 807 Chestnut street, 799.

Safes, Doors and Vaults (fireproof).—Establishments, 65; steam-engines, 35 (horse-power, 659); water-wheel, 1 (horse-power, 10); hands employed, 1639 (men, 1599; woman, 1; youths, 39); capital, $2,075,200; wages, $917,263; materials, $967,810; products, $2,728,336.

Sailors.

(For personal statistics see FORWARDING and TRANSPORTATION.)

Salve Manufacturers.

Powell W. F., 412 South Second street, 838.

Richelderfer J. H., 1032 Chestnut street, 752.

No special statistics were given for this branch, the returns being included in those of patent medicines and compounds.

Sand Dealer.

Walter B. R., 611 Beach street, 736.

Sash, Doors and Blinds.

(See also PLANING MILLS.)

Establishments, 1605; steam-engines, 999 (horse-power, 27,061); water-wheels, 367 (horse-power, 7758); hands employed, 20,379 (men, 19,496; women, 43; youths, 840); capital, $21,239,809; wages, $10,059,812; materials, $17,581,814; products, $36,625,806.

Saw Manufacturers.

Disston H. & Sons, Front and Laurel streets, 750.

McNiece William, 515 Cherry street, 838.

Saws.—Establishments, 72; steam-engines, 40 (horse-power, 1303); water-wheels, 13 (horse-power, 246); hands employed, 1595 (men, 1457; women, 8; youths, 130); capital, $2,883,391; wages, $995,609; materials, $1,332,891; products, $3,175,289.

Saw-mill Operatives.

Number, 47,298 (males, 47,263; females, 35); ages, 10 to 15, 797; 16 to 59, 45,969; 60 and over, 532; born in the United States, 33,527; Germany, 3404; Ireland, 1793; England and Wales, 689; Scotland, 304; British America, 4894; Sweden, Norway and Denmark, 117; France, 135; China and Japan, 40.

Scales, Balances, etc.

Riehle Bros., Philadelphia, 798.

Troemner H., 710 Market street, 763.

Scales and Balances.—Establishments, 49; steam-engines, 16 (horse-power, 508); water-wheels, 10 (horse-power, 205); hands employed, 1003 (men, 955; women, 7; youths, 41); capital, $1,019,500; wages, $668,451; materials, $920,870; products, $2,823,816.

Seeds.

Buist Robert, Jr., 922 and 924 Market street, 799.
Dreer Henry A., 714 Chestnut street, 721.
Jones Wm. H., 1621 Market street, 844.
Landreth David & Son, 23 South Sixth street, 841, 842.

Sewing-Machine Cases, etc.

Loth Henry, 645 North Broad street, 769.

Sewing-Machine Manufacturers.

American Sewing-Machine Co., 1318 Chestnut street, 715.

Sewing-Machines.—Establishments, 49; steam-engines, 37 (horse-power, 1688); water-wheels, 6 (horse-power, 145); hands employed, 7291 (men, 6709; women, 334; youths, 248); capital, $8,759,431; wages, $5,142,248; materials, $3,055,786; products, $14,097,446. *Sewing-Machine Fixtures.*—Establishments, 20; steam-engines, 13 (horse-power, 490); water-wheel, 1 (horse-power, 75); hands employed, 1130 (men, 1075; women, 11; youths, 44); capital, $761,800; wages, $638,973; materials, $585,909; products, $1,749,858. *Sewing-Machine Factory Operatives*, 3881 (males, 2015; females, 1866); ages, 10 to 15, 150; 16 to 59, 3710; 60 and over, 21; born in the United States, 2614; Germany, 195; Ireland, 742; England and Wales, 190; Scotland, 28; British America, 44; Sweden, Norway and Denmark, 4; France, 22. *Sewing-Machine Operators*, 3042 (males, 182; females, 2860); ages, 10 to 15, 176; 16 to 59, 2856; 60 and over, 10; born in the United States, 2337; Germany, 77; Ireland, 470; England and Wales, 71; Scotland, 17; British America, 52; Sweden, Norway and Denmark, 5; France, 6.

Sewing Silks and Twists.

Aub, Hackenburg & Co., 20 North Third street, 836.
Hooley B. & Son, 226 Market street, 704.
Hovey F. S., 248 Chestnut street, 752.

Sewing Silk and Twist.—Establishments, 35; steam-engines, 20 (horse-power, 450); water-wheels, 21 (horse-power, 332); hands employed, 2523 (men, 465; women, 1368; youths, 690); capital, $2,223,500; wages, $624,917; materials, $4,197,752; products, $5,672,875.

Shafting Manufacturer.

(No special statistics in this branch were given, the returns being included under those of MACHINERY (not specified).)

Cresson George V., S. E. corner of Eighteenth and Hamilton, 697.

Shawls, Hosiery, Knit Goods.

Landenberger's M. Sons, Frankford avenue and Wildey street, 767.

Murphy James S., 1024 Lombard street, 755.

Steffan F. & Co., 1344 and 1346 North Front street, 709.

Hosiery (including Knit Goods).—Establishments, 248; steam-engines. 81 (horse-power, 2223); water-wheels, 124 (horse-power, 4275); hands employed, 14,788 (men, 4252; women, 7991; youths, 2545); capital, $10,931,-260; wages, $4,429,085; materials, $9,835,823; products, $18,411,564. Number of shawls made in 1870, 2,312,761.

Ship-building.

Ship Materials and Repairs.—Establishments, 762; steam-engines, 119 (horse-power, 3311); water-wheels, 6 (horse-power, 109); hands employed, 11,063 (men, 10,978; women, 2; youths, 83); capital, $9,102,335; wages, $5,594,686; materials, $8,252,394; products, $17,910,328.

Shirt Manufacturers.

Eshleman & Craig, 821 Chestnut street, 789.

No special statistics for the whole country were given. The figures for Philadelphia were as follows: Establishments, 25; steam-engines, 2 (horse-power, 20); hands employed, 685 (men, 77; women, 602; youths, 6); capital, $255,000; wages, $204,050; materials, $349,400; products, $929,510.

Shoe Manufacturers' Goods.

Eveland Charles S. & Co., 138 North Third street, 705.

Laing & Maginnis, 30 North Third street, 725.

Shoe-pegs.—Establishments, 26; steam-engines, 10 (horse-power, 257); water-wheels, 8 (horse-power, 365); hands employed, 279 (men, 175; women, 98; youths, 6); capital, $169,900; wages, $78,051; materials, $63,-736; products, $264,847. See also BOOT AND SHOE MANUFACTURERS, LASTS, LEATHER, etc.

Shovels, Spades, etc.

Halfman & Co., 211 to 215 Quarry street, 737.

Lehigh Shovel Works, Bethlehem, Pa, 703.

Shovels and Spades.—Establishments, 13; steam-engines, 11 (horse-power, 614); water-wheels, 21 (horse-power, 540); hands employed, 849

(men, 837; women, 2; youths, 10); capital, $757,100; wages, $489,100; materials, $1,424,944; products, $2,445,526.

Show-Cards.

Tallman's Superior Show-Cards, 708 Market street, 816.

Show-Cases.

Irons James, 132 North Fourth street, 735.

Show-cases.—Establishments, 47; steam-engines, 2 (horse-power, 9); hands employed, 353 (men, 340; woman, 1; youths, 12); capital, $178,300; wages, $219,834; materials, $419,466; products, $838,699.

Silicate of Soda.

Philadelphia Quartz Company, 9 North Front street, 783.

Silk Goods (not specified).

Establishments, 53; steam-engines, 28 (horse-power, 672); water-wheels, 26 (horse-power, 457); hands employed, 4176 (men, 1269; women, 2203; youths, 704); capital, $4,019,630; wages, $1,328,389; materials, $4,126,-821; products, $7,066,487.

Skivers, Manufacturers of.

Hummel J. M. & Sons, 955 North Third street, 720.

Slate Quarries.

Kimes J. B. & Co., 1215 Race street, 734.

The Locke Slate Company, 1126 Market street, 775.

Quarrying (including Marble and Slate).—Establishments, 1120; steam-engines, 118 (horse-power, 2445); water-wheels, 28 (horse-power, 599); hands employed, 15,117 (men, 15,001; youths, 116); capital, $11,207,-693; wages, $6,580,134; materials, $1,135,541; products, $12,086,892.

Soap Manufacturers.

Dobbins' Electric Soap, I. L. Cragin & Co., Philadelphia, New York and Boston, 741.

Soap and Candles.—Establishments, 614; steam-engines, 158 (horse-power, 3909); water-wheel, 1 (horse-power, 20); hands employed, 4422 (men, 3828; women, 309; youths, 285); capital, $10,454,860; wages, $1,925,951; materials, $15,232,587; products, $22,535,337.

Soapstone.

Pratt E., 521 Cresson street, 737.

Prince S. F., 2214 Chestnut street, 839.

Soapstone Stoves, Fire-places, Sinks and Cisterns.—Establishments, 9; steam-engine, 1 (horse-power, 50); water-wheels, 2 (horse-power, 87); hands employed, 74; capital, $127,500; wages, $38,944; materials, $98,-325; products, $189,115.

Soda-Water Apparatus Manufacturers.

Hindermyer Jos. & Son, 911 and 913 Vine street, 799.

Lippincott Charles & Co., 916 and 925 Filbert, 849.

Soda-water Apparatus.—Establishments, 13; steam-engines, 9 (horse-power, 97); hands employed, 307 (men, 300; woman, 1; youths, 6); capital, $424,150; wages, $140,751; materials, $304,246; products, $813,075.

Spice and Mustard Manufacturers.

Fell C. J. & Bro., 120 South Front street, 787.

Spices and Mustard entered into consumption in the United States in 1870–71 (value), $1,893,244.94; in 1871–2, $1,682,493.58; in 1872–3, $1,957,596.39; in 1873–4, $2,087,261.65.

Spool Cotton.

Bates & Coates, 209 Church street, for J. & P. Coats, of Paisley, Scotland, 701.

Spool Thread manufactured in the United States in 1870, 11,560,241 dozens; Connecticut, 3,397,130; Rhode Island, 3,341,200; Massachusetts, 2,595,358; New Jersey, 1,650,000; Tennessee, 466,829; Alabama, 105,-724; Louisiana, 4000. *Cotton-thread Twine and Yarns.*—Establishments, 123; steam-engines, 40 (horse-power, 2093); water-wheels, 122 (horse-power, 4820); hands employed, 6077 (men, 2052; women, 2938; youths, 1087); capital, $7,392,295; wages, $1,743,651; materials, $5,135,303; products, $8,726,217.

Stained Glass Works.

Gibson J. & G. H., 123 and 125 South Eleventh street, 739.

Smith H. J. & Co., 617 South Broad street and 1727 Chestnut street, 713.

Stained Glass.—Establishments, 18; steam-engines, 3 (horse-power, 44); hands employed, 170 (men, 156; women, 10; youths, 4); capital, $148,-800; wages, $99,739; materials, $90,277; products, $297,480.

Stationers.

(For personal statistics, see Booksellers and Stationers, and for additional figures, see Gold Pens, Paper, Ink, etc.)

Bush I. A., 114 South Tenth street, 826.

Clark John C. & Sons, 230 Dock street, 739.

Lead Pencils.—Establishments, 7; steam-engines, 6 (horse-power, 265);

hands employed, 156 (men, 61; women, 95); capital, $241,150; wages, $48,150; materials, $44,510; products, $160,800. *Wooden Penholders.*—Establishments, 4; steam-engine, 1 (horse-power, 2); water-wheels, 2 (horse-power, 60); hands employed, 24 (men, 19; women, 5); capital, $32,500; wages, $7700; materials, $11,591; products, $34,096.

Steamship Companies.

(For statistics, see *Table III.*, in APPENDIX, and COMMERCE and NAVIGATION, page 474. For personal statistics of SAILORS, see FORWARDING and TRANSPORTATION.)

Clyde W. P. & Co., 12 South Delaware avenue, front of book.
Inman Line, O'Donnell & Faulk, 402 Chestnut street, 833.

Steam-Engines, Boilers, etc.

Moseley Thomas W. H., 147 South Fourth street, 851 and 852.

Steam-Engines and Boilers.—Establishments, 663; steam-engines, 515 (horse-power, 11,076); water-wheels, 33 (horse-power, 764); hands employd, 22,962 (men, 22,444; women, 8; youths, 510); capital, $25,987,452; wages, $12,572,244; materials, $19,734,404; products, $41,576,264. Personal statistics of engineers and firemen are given under ENGINEERS.

Steel Manufacturers (Steel Rails and Axles).

Pennsylvania Steel Company, 216 South Fourth street, 704.

Steel (including Steel Springs).—Establishments, 71; steam-engines, 111 (horse-power, 12,533); water-wheels, 12 (horse-power, 457); hands employed, 3458 (men, 3374; women, 4; youths, 80); capital, $8,771,900; wages, $2,252,838; materials, $6,828,923; products, $12,538,979.

Stencil-Cutters.

Quaker City Stencil Works, 234 Arch street, 835.
Scheible William F., 49 South Third street, 743.

Engraving and Stencil-Cutting.—Establishments, 136; steam-engines, 4 (horse-power, 13); water-wheel, 1 (horse-power, 10); hands employed, 431 (men, 381; women, 5; youths, 35); capital, $244,000; wages, $155,968; materials, $103,035; products, $509,644.

Stereotypers, Electrotypers, etc.

Fagan J. & Son, 621 Commerce street, 732.
George S. A. & Co., 15 North Seventh street, 744.
Mears, Dill & Mears, Electrotypers, 323 Harmony street, 804.
Westcott & Thomson, 710 Filbert street, 751.

Stereotyping and Electrotyping.—Establishments, 36; steam-engines, 8 (horse-power, 91); hands employed, 766 (men, 659; women, 15; youths,

92); capital, $1,033,200; wages, $446,532; materials, $220,774; products, $1,075,080.

Stone-Cutters' Tools.

Beck William P., Twenty-second and Barker streets, 834.

No special statistics for this branch were given. The following were the figures for *Edge Tools and Axes:* Establishments, 97; steam-engines, 36 (horse-hower, 1292); water-wheels, 119 (horse-power, 4431); hands employed, 3520 (men, 3470; women, 11; youths, 39); capital, $4,219,205; wages, $1,997,795; materials, $2,413,555; products, $5,482,539. See also CUTLERY and EDGE TOOLS, and the personal statistics of STONE-CUTTERS, are combined with those of MARBLE- and STONE-CUTTERS, which see.

Stove Manufacturers.

Sheppard Isaac A. & Co., Fourth and Montgomery avenue, Phila., and Eastern avenue and Chester, Baltimore, 696.

The Leibrandt & McDowell Stove Company, 133 North Second street, 703.

Stoves, Heaters, Ranges, etc.

(See also HEATERS, etc.)

Borden J. & Brother, 637 North Nineteenth street, 732.

Dickson James, 1116 Market street, 762.

Kershaw John, 1840 Market street, 788.

McCoy & Roberts, 1208 and 1210 Market street, 837.

Stoves, Heaters and Hollow Ware.—Establishments, 326; steam-engines, 248 (horse-power, 5733); water-wheels, 34 (horse-power, 491); hands employed, 13,325 (men, 12,740; youths, 585); capital, $19,833,720; wages, $8,156,121; materials, $9,044,069; products, $23,389,665.

Stove Polish.

Bartlett H. A. & Co., 113 and 117 North Front street, 731.

Strow, Wile & Co., 1330 to 1334 Callowhill street, 837.

Polishing Preparations.—Establishments, 21; steam-engines, 4 (horse-power, 85); water-wheels, 3 (horse-power, 33); hands employed, 98 (men, 73; women, 16; youths, 9); capital, $370,800; wages, $37,087; materials, $214,696; products, $323,015.

Tailors' Measures and Fashions.

Ward A. F., 138 South Third street; res. 618 South Ninth st., Phila.

Tailors.

Aschenbach & Hahn, 170 North Fourth street, 732.

Mattson & Dilkes, 1346 Chestnut street, 732.

Tailors, Tailoresses and Seamstresses, 161,820 (males, 64,613; females, 97,207); ages, 10 to 15, 2718; 16 to 59, 153,977; 60 and over, 5125; born in the United States, 94,875; Germany, 33,200; Ireland, 18,009; England and Wales, 4785; Scotland, 1196; British America, 2795; Sweden, Norway and Denmark, 1961; France, 1496; China and Japan, 145.

Tanners.

Forepaugh Wm. F., Jr., & Bros., Randolph and Jefferson streets, 747.

Curriers, Tanners and Finishers of Leather, 28,702 (males, 28,642; females, 60); ages, 10 to 15, 257; 16 to 59, 26,425; 60 and over, 2020; born in the United States, 18,005; Germany, 3458; Ireland, 4764; England and Wales, 756; Scotland, 256; British America, 893; Sweden, Norway and Denmark, 165; France, 169. For statistics of leather tanned and curried see AMERICAN MANUFACTURES, page 615.

Taxidermists.

Galbraith A., 209 North Ninth street, 745.

Taylor James, 1916 Callowhill street, 838.

Taxidermy.—Establishments, 8; hands employed, 18; capital, $20,200; wages, $5700; materials, $11,464; products, $26,650.

Teas, Coffees and East India Goods.

(For imports of Teas and Coffees see COMMERCE AND NAVIGATION, page 470, and for personal statistics of Grocers see under GROCERIES.)

Bond Francis, 139 South Eighth street, 766.

Fell C. J. & Bro. (Tea dealers and importers), 787.

Terra Cotta.

French E. D. & W. A., Third and Vine streets, Camden, N. J., 707.

Galloway & Graff, 1723–5 Market street, 845.

Mitchell J. E., 310 York avenue, Philadelphia.

Drain-pipe.—Establishments, 68; steam-engines, 15 (horse-power, 339); water-wheels, 3 (horse-power, 110); hands employed, 758 (men, 733; women, 2; youths, 23); capital, $977,375; wages, $316,521; materials, $415,360; products, $1,294,256.

Tinsmiths, Tin-roofers, etc.

Powell W. F., 412 South Second street, 838.

Thomason Wm. J. & Bro., 108 Arch street, 844.

Tin-, Copper- and Sheet-iron-ware.—Establishments, 6646; steam-engines, 68 (horse-power, 1236); water-wheels, 6 (horse-power, 270); hands employed, 25,823 (men, 24,201; women, 631; youths, 991). *Traders and Dealers in Iron-, Tin- and Copper-wares*, 9003 (males, 8981; females, 22);

ages, 16 to 59, 8766; 60 and over, 237; born in the United States, 7313; Germany, 794; Ireland, 316; England and Wales, 250; Scotland, 83; British America, 95; Sweden, Norway and Denmark, 24; France, 46; China or Japan, 1. *Tinners*, 30,524 (males, 30,507; females, 17); ages, 10 to 15, 449; 16 to 59, 29,581; 60 and over, 494; born in the United States, 22,337; Germany, 3835; Ireland, 1732; England and Wales, 1019; Scotland, 241; British America, 529; Sweden, Norway and Denmark, 155; France, 264; China and Japan, 13.

Toy Manufacturers.

Greiner A. C. & H. G. (Doll Heads), 414 North Fourth street, 834.

Lacmann J. & Sons (Doll Bodies, etc.), 809 Race street, 717.

Toys and Games.—Establishments, 49; steam-engines, 7 (horse-power, 57); water-wheels, 16 (horse-power, 270); hands employed, 615 (men, 357; women, 184; youths, 74); capital, $312,800; wages, $182,255; materials, $159,946; products, $579,865.

Trunks, Valises, etc.

Trunks, Valises and Satchels.—Establishments, 222; steam-engines, 15 (horse-power, 358); water-wheels, 4 (horse-power, 55); hands employed 3479 (men, 2798; women, 457; youths, 224); capital, $2,185,964; wages, $1,810,798; materials, $3,315,038; products, $7,725,488.

Trusses, Bandages, etc.

Everett B. C., 14 North Ninth street, 717.

Trusses, Bandages and Supporters.—Establishments, 36; steam-engines, 4 (horse-power, 31); water-wheels, 2 (horse-power, 9); hands employed, 275 (men, 154; women, 110; youths, 11); capital, $154,305; wages, $101,070; materials, $108,512; products, $363,205.

Undertakers' General Supplies.

Paxson, Comfort & Co., 231 Market street, 819.

Undertakers.

Horne Cyrus, 23 North Eleventh street, 783.

Rulon John C., 1313 Vine street, 814.

Undertakers, 1996 (males, 1976; females, 20); ages, 16 to 59, 1853; 60 and over, 143; born in the United States, 1480; Germany, 173; Ireland, 216; England and Wales, 74; Scotland, 9; British America, 13; Sweden, Norway and Denmark, 6; France, 15. *Coffins.*—Establishments, 642; steam-engines, 19 (horse-power, 359); water-wheels, 13 (horse-power, 183);

hands employed, 2365 (men, 2292; women, 42; youths, 31); capital, $2,592,862; wages, $1,011,397; materials, $1,412,078; products, $4,026,989.

Varnish Manufacturers.

Felton, Rau & Sibley, 138 and 140 North Fourth street, 754.

Varnish.—Establishments, 59; steam-engines, 5 (horse-power, 95); hands employed, 415 (men, 410; women, 2; youths, 3); capital, $2,168,740; wages, $252,059; materials, $3,311,097; products, $4,991,405. Personal statistics of Varnishes are combined with those of Painters, under PAINTERS and VARNISHERS.

Vat- and Tank-Makers.

Burkhardt George J. & Co., 1341 Buttonwood street, 813.

Fisher & Hall, 1143 to 1147 North Front street, 833.

No special statistics for this branch were given for the whole country, but the following were the figures for Philadelphia: *Vats (wooden).*—Establishments, 4; steam-engine, 1 (horse-power, 19); hands employed, 29; capital, $30,000; wages, $19,584; materials, $29,530; products, $88,800.

Wadding Manufacturer.

Gorgas Matthias, 17 North Front street, 732.

Cotton Batting and Wadding.—Establishments, 27; steam-engines, 14 (horse-power, 240); water-wheels, 11 (horse-power, 161); hands employed, 244 (men, 159; women, 31; youths, 54); capital, $276,800; wages, $78,876; materials, $533,451; products, $720,117.

Watches, Jewelry, etc.

Conover David F. & Co., Seventh and Chestnut street, 699.

Kretzmar E., 1311 Chestnut street, 836.

Philadelphia Watch Company, 618 Chestnut street, 836.

Watches.—Establishments, 37; steam-engines, 4 (horse-power, 145); hands employed, 1816 (men, 1202; women, 592; youths, 22); capital, $2,666,133; wages, $1,304,304; materials, $412,783; products, $2,819,080. *Jewelry (not specified).*—Establishments, 681; steam-engines, 78 (horse-power, 805); water-wheels, 13 (horse-power, 111); hands employed, 10,091 (men, 8141; women, 1545; youths, 405); capital, $11,787,956; wages, $4,433,235; materials, $9,187,364; products, $22,104,032. *Traders and Dealers in Gold and Silver Ware and Jewelry,* 6402 (males, 6382; females, 20); ages, 16 to 59, 6208; 60 and over, 194; born in the United States, 4315; Germany, 1084; Ireland, 139; England and Wales, 272; Scotland, 52; British America, 81; Sweden, Norway and Denmark, 96; France, 100; China and Japan,

48; *Gold and Silver Workers*, 18,508 (males, 17,279; females, 1229); ages, 10 to 15, 357; 16 to 59, 17,621; 60 and over, 530; born in the United States, 11,690; Germany, 3088; Ireland, 1021; England and Wales, 1135; Scotland, 190; British America, 239; Sweden, Norway and Denmark, 238; France, 312; China and Japan, 16.

Wax Fruit and Flowers.

Maxwell John, 226 North Ninth street, 814.

Artificial Feathers, Flowers and Fruits.—Establishments, 54; hands employed, 1451 (men, 400; women, 842; youths, 209); capital, $418,650; wages, $276,331; materials, $369,004; products, $986,125.

Weather Vane Manufacturer.

Henis William G., 641 and 643 North Ninth street, 745.

Whips and Canes.

Glendinning & Truitt, 9 North Fourth street, 831.

Whips and Canes.—Establishments, 103; steam-engines, 7 (horse-power, 142); water-wheels, 9 (horse-power, 125); hands employed, 961 (men, 621; women, 301; youths, 39); capital, $883,561; wages, 384,544; materials, $503,502; products, $1,243,118.

White Lead Manufacturers.

Harrison Brothers & Co., 105 South Front street, 704.

Lewis John T. & Brothers, 231 South Front street, 781.

Wetherill & Brother, Thirty-first street below Chestnut, 797.

No special statistics of this branch were given for the whole country, the returns being included in those of Paints, Lead and Zinc. The figures for Philadelphia were as follows: *White Lead.*—Establishments, 3; steam-engines, 3 (horse-power, 120); hands employed, 106; capital, $525,000; wages, $64,800; materials, $750,100; products, $1,108,000.

Whiting Manufacturers.

Philadelphia and Boston Whiting Company, York and Almond sts., 792.

Window-Glass.

Magee John A., 1235 Vine street, 835.

Sharp J. E., 707 and 709 Filbert street, 848.

Witmer D. L. & Bro., Fifth street and Germantown avenue, 786.

Window-Glass.—Establishments, 35; steam-engines, 20 (horse-power, 381); water-wheels, 2 (horse-power, 110); hands employed, 2859 (men,

2403; women, 37; youths, 419); capital, $3,244,560; wages, $1,503,277; materials, $1,400,760; products, $3,811,308.

Window-Shade Manufacturers.

Free Martin, 956 North Second street, 763.

Louderbach Edwin, 222 North Fifth street, 745.

No special statistics of this branch were given for the whole country. The figures for Philadelphia were as follows: *Window-Blinds and Shades.*—Establishments, 25; steam-engine, 1 (horse-power, 3); hands employed, 130 (men, 80; women, 36; youths, 14); capital, $94,050; wages, 54,980; materials, $63,605; products, $201,311.

Wines and Liquors.

Daly H. M., 222 South Front street, 890.

Daly Philip, 128 South Ninth street, 889.

Hartley W. H., 52 North Fifth street, 754.

Leith Syl. A. & Co., 210 South Front street, 772.

Schneyer Charles, 154 and 156 Fairmount avenue, 746.

Liquors, Distilled.—Establishments, 719; steam-engines, 411 (horse-power, 12,853); water-wheels, 82 (horse-power, 811); hands employed, 5131 (men, 5068; women, 6; youths, 57); capital, $15,545,116; wages, $2,019,810; materials, $19,729,432; products, $36,191,133. *Liquors, Malt.*—Establishments, 1972; steam-engines, 726 (horse-power, 10,438); water-wheels, 30 (horse-power, 324); hands employed, 12,443 (men, 12,320; women, 29; youths, 94); capital, $48,779,435; wages, $6,758,602; materials, $28,177,684; products, $55,706,643. *Liquors, Vinous.*—Establishments, 398; steam-engines, 4 (horse-power, 39); hands employed, 1486 (men, 1426; women, 32; youths, 28); capital, $2,334,394; wages, $230,650; materials, $1,203,172; products, $2,225,238. *Traders and Dealers in Liquors and Wines,* 11,718 (males, 11,612; females, 106); ages, 16 to 59, 11,504; 60 and over, 214; born in the United States, 4559; Germany, 2672; Ireland, 3211; England and Wales, 387; Scotland, 99; British America, 102; Sweden, Norway and Denmark, 45; France, 357; China and Japan, 4.

Wire-Work, Sieves, Screens.

Bayliss & Darby Manufacturing Co., 231 Arch and 114 North Sixth street, 808.

Macready J. W., 1411 and 1413 Vine street, 747.

Needles Joseph A., 54 North Front street, 717.

Watson & Kelso, 46 and 48 North Front street, 798.

Wire-Work.—Establishments, 141; steam-engines, 22 (horse-power, 470); water-wheels, 20 (horse-power, 422); hands employed, 2526 (men, 1316;

women, 1053; youths, 157); capital, $1,667,900; wages, $719,633; materials, $1,548,006; products, $2,959,227. *Wire.*—Establishments, 32; steam-engines, 23 (horse-power, 2082); water-wheels, 25 (horse-power, 745); hands employed, 1733 (men, 1475; women, 226; youths, 32); capital, $2,520,800; wages, $1,078,184; materials, $2,955,925; products, $5,030,581.

Wood-Turners.

Cundey E. & Brother, 848 North Fourth street, 724.

Rue J., 805 Master street, 747.

Wood, Turned and Carved.—Establishments, 733; steam-engines, 221 (horse-power, 3830); water-wheels, 235 (horse-power, 4323); hands employed, 4103 (men, 3777; women, 103; youths, 223); capital, $2,751,544; wages, $1,499,565; materials, $1,648,008; products, $4,959,191.

Wool, Cotton and Woollen Yarns.

Whilldin Alexander & Sons, 20 and 22 South Front street, 850.

Statistics of Cotton and Woollen Goods are given on pages 614, 615, and those of Wool produced and imported are found on page 576.

ADVERTISEMENTS will be received for the second and all succeeding editions of this book, and the names of those who avail themselves of these opportunities will also be incorporated in the index to each successive edition. Apply either by letter or personally at the office, 152 South Fourth street, Philadelphia.

S. W. BURLEY, *Publisher.*

BURLEY'S

UNITED STATES

CENTENNIAL GAZETTEER AND GUIDE.

HISTORICAL SKETCH

OF THE

UNITED STATES OF AMERICA.

DISCOVERY AND SETTLEMENTS [1497–1733].

FOURTEEN months before Columbus had seen the *main land* of the New World, and two years before Americus Vespucius had sailed west of the Canaries, John and Sebastian Cabot, sailing under a commission from Henry VII. of England, discovered the American continent (June 24, 1497). In the following year Sebastian returned and coasted the present territory of the United States for more than seven hundred miles, landing at various points, and planting on the soil the banner of England. By that act he took possession of the country in the name of his royal master. The memory of Columbus, the pioneer in Western discovery, is held in deserved honor. That of Americus Vespucius is perpetuated in the name of the continent which he was the first to describe. It is generally thought that he bought the honor too cheaply by merely happening to be the first reporter in the field. His description of the country was published at Strasburg in 1505, by a German map-publisher. In a letter written to the duke of Lorraine (September 4, 1504) he falsely claimed that he had discovered the main land in 1497. On account of the letter and the description his name was given to the New World. How different the fate of Sebastian Cabot! Though he made a subsequent voyage in 1517, entering Hudson's Bay ninety years before the great Dutch navigator whose name it bears; though for sixty years his advice was sought concerning every important maritime enterprise undertaken by

more than one nation; though he gave to England such a claim for the possession of this country as discovery and the formalities above mentioned could procure; though even when the navigator was seventy-five years old the emperor Charles V. sent, through his ambassador to England, a special request that Cabot should be sent back to his service,—the date of his death and even his burial-place are not known. The remains of Columbus, who died in poverty and neglect, rest in the cathedral at Havana.* Those of Cabot, who was honored all his lifetime, are covered, so far as is known, by not even a simple memorial stone.

The voyages of Cabot were of more immediate importance to the destinies of the United States than any others undertaken during the fifteenth and sixteenth centuries, excepting, of course, the first voyage of Columbus, upon which all the rest depended. The banners planted upon the coast became the prey of the elements or were carried away by the Indians, but the claim which they symbolized was never forgotten in England. Not counting the effort of Hore and his companions, who were "starved out" of Newfoundland in 1536, eighty years elapsed before the first attempt was made by Englishmen to plant settlements in their new possessions, and more than a century before they obtained a permanent footing. During this long interval, however, their right to the coast was generally respected, even by their inveterate enemies the French, who planted most of their colonies in the inclement climate of Canada. Spain, it is true, laid claim to the whole coast, even as far as Newfoundland, under the name of Florida; but the failure of De Soto's expedition, and the death of De Soto himself on the bank of the Mississippi, discouraged Spanish efforts at colonization. What the Spanish wished were plenty of gold and as little work as possible. These they had obtained in both Mexico and Peru, but when they went farther north the gold they did not find, and the Indians whom they met in their travels seemed very poor material for slaves.

It remained for the great Anglo-Saxon race to reclaim these fertile regions, uncultivated, or mis-cultivated, by people well-nigh as wild as the

* Nearly every history of any size gives his first epitaph, which was ordered to be put upon his tomb by the ungrateful Ferdinand of Spain: "To Castile and Leon Columbus gave a new world." We translate the following description of his present resting-place from a Spanish work, *La Isla de Cuba*, by Don Jose G. de Arbolena: "A modest stone, with a bust in bas-relief and a thoroughly prosaical inscription, covers the remains of the immortal navigator who bore to these regions the torch of faith, and gave to civilization the conquest of a new world. Here is the inscription:

> 'O remains and image of the great Columbus!
> Remain for a thousand centuries kept in this urn
> And in the remembrance of this nation!'"

Arbolena very pertinently asks, "Where were the Muses when these lines were composed?"

beasts of chase upon which they mainly subsisted. That race, after conquering the ancient Britons, though conquered in war by the Normans, gained a substantial and durable victory over the latter in language, in literature, and, if legal antiquarians are to be believed, in the more important matter of legal principles. Composed of men who were able and willing to work, who despised danger, who bore imprinted on their heart of hearts a reverence for law combined with an ardent love of liberty—the Anglo-Saxon race possesses so strong an element of vitality that it has assimilated the various nationalities which enter into the composition of American society, and has made the United States an English-speaking nation.

Under a patent from Queen Elizabeth, Sir Walter Raleigh attempted to plant a settlement on the island of Roanoke in 1585. The colonists were reduced to such straits by the want of provisions that they were obliged to kill two mastiffs which they had with them, and make "dogge's porridge." They were taken off a year after their arrival by the fleet of Sir Francis Drake, just two weeks before Sir Richard Grenville arrived with reinforcements and ample supplies. Fifty men left as a garrison by Grenville were murdered by the Indians. A colony sent out in the following year probably met with the same fate. Raleigh had spent nearly £40,000 ($200,000), yet had accomplished nothing.

These successive failures made it evident that it was not in the power of any one man, however wealthy, to plant a permanent colony in the territory then claimed by England, which extended from Cape Fear in North Carolina to Halifax in Nova Scotia, and westward to the Pacific. Two companies were therefore formed—the *London Company*, of "noblemen, gentlemen and merchants," to colonize SOUTH VIRGINIA, extending from the thirty-fourth to the thirty-eighth degrees of north latitude, and the *Plymouth Company*, to colonize NORTH VIRGINIA, extending from the forty-first to the forty-fifth degrees of north latitude. The name of the latter division was changed to NEW ENGLAND by Captain John Smith, who explored the coast and made a map of it in 1614. The strip of territory, two hundred miles broad, between these divisions, was left free to both companies, to prevent disputes about boundaries.

The first settlement was made by the London Company at Jamestown, on the James River, in Virginia, in 1607. The first colonists were not very good material for the formation of a commonwealth, being afflicted with the gold fever. Farming was so much neglected that for several years the main supply of food was purchased from the Indians with goods sent over by the company. When the Indians were hostile a "starving time" ensued. The wise management of the famous Captain John Smith; the gradual cure of the gold fever by the failure of all attempts to find any of that precious metal; the abandonment of the "community-of-

goods" system, which resembled that of the "International Association of Workingmen," and the stern enforcement of the scriptural rule that "if any would not work, neither should he eat,"—placed the colony on a firm basis. The progress made was not steady and regular, as the following statements of the population at different dates will show. In October, 1609, when Smith left the colony, it contained 490 settlers. In April, 1610, the number was reduced to 60. In 1619 the number had increased to 600. In 1624, 9000 immigrants had been brought over, counting from the first planting of the colony, out of which only 1800 remained. In the following year Virginia was made a royal province, but the House of Burgesses was left in existence, and the government was really freer than that of England under Charles I. In 1649 the colonists numbered 15,000, and the little commonwealth was in a very prosperous condition. The difficulties which caused so great a fluctuation in the number of inhabitants were sickness, famine, massacres by the Indians, and desertions from the colony through fear of the savages. The fact that a permanent state was founded, in spite of so many and so great obstacles, is a proof that we have not been too lavish in our praises of Anglo-Saxon energy and perseverance.

For thirteen years the Plymouth Company existed, but it accomplished little more than one unsuccessful attempt at settlement in Maine and some explorations of the coast. In 1620 it was superseded by the Council of Plymouth, composed of forty of the wealthiest and most powerful men in England. The very names of these two corporations bring to mind the first successful attempt to settle in New England. The landing of the "Pilgrim Fathers" on Plymouth Rock in 1620; the bravery and steadfastness with which they struggled against all the difficulties which beset the Virginian settlers, together with a climate comparatively bleak and a soil comparatively barren; their ardent religious zeal, which frequently carried them beyond the bounds of that toleration which it was the professed object of their self-imposed exile to secure for themselves;—these and kindred themes have served so frequently as subjects for poet and painter, for orator and lecturer, for historian and novelist, that "the wayfaring man, though a stranger," cannot be wholly ignorant of them. We shall, therefore, instead of attempting to tell a story which has been told so often and so well, condense a report of the results of thirty years' colonization, from a pamphlet entitled '*Wonder-working Providences of Zion's Saviour in New England*,' published by Captain Edward Johnson in 1650, as quoted by Hildreth: "The wigwams, huts and hovels the English dwelt in at their first coming are turned into orderly, fair and well-built houses, well furnished, many of them, with goodly fruit trees and garden flowers." Many laboring men who had not enough to bring them over were now "worth scores, and some hundreds, of pounds. Those who

were formerly forced to fetch most of the bread they ate and the beer they drank a thousand leagues by sea, are so increased that they have not only fed their elder sisters, Virginia, Barbadoes and the Summer Islands, but also the grandmother of us all, even the fertile isle of Great Britain, besides Portugal, that hath had many a mouthful of bread and fish from us in exchange for their Madeira liquors, and also Spain. Good white and wheaten bread is no dainty, but every ordinary man hath his choice. Flesh is now no rare food, beef, pork and mutton being frequent in many houses, so that this poor wilderness hath equalized England in food." As many as thirty-two trades were carried on in the colony, those of coopers, tanners and shoemakers being the most successful, and shoes were already manufactured for exportation.

As this description gives a fair idea of the results attained by nearly every attempt at settlement, we shall devote the remainder of our limited space to giving the dates of the settlements of the remaining eleven of "the thirteen original colonies." The first *permanent* settlement in New York was made by the Dutch in 1623, the colony being named New Netherland, and the present city of New York was called New Amsterdam. In 1664 the province was seized by the English, and received its present name. New Jersey was settled in 1623 by the Dutch, passing into English hands at the same time with New York. New Hampshire was settled in 1623 by English settlers; Connecticut in 1633 by English and Dutch, but the number of the latter was so small that even that fierce old warrior, Peter Stuyvesant, was glad to give up the claim by treaty in 1650. Maryland was settled in 1631 by William Claiborne, and in 1634 by a colony under Leonard Calvert, the brother of Cecil, Lord Baltimore. Rhode Island was settled in 1636 by Roger Williams; Delaware in 1638 by Swedes, who named the colony New Sweden. In 1655, New Sweden was conquered by the Dutch, and in 1664 it followed the fortunes of New Netherland, falling into the power of the English. The first permanent settlement was made in North Carolina in 1665, and in South Carolina in 1670. In these two colonies, which were not politically separated until 1729, an attempt was made to carry out a scheme of government devised by the celebrated philosopher John Locke. This scheme provided for two orders of nobility, and contained various other features which rendered it totally unsuited for the management of a free colony. The result showed that however able Locke was in writing upon the *theory* of government, concerning the *practice* he possessed no "innate ideas," and those procured by "sensation and reflection" possessed little value. Although scattering parties of Swedes and Finns had reached the western bank of the Delaware as early as 1627, 1682 is given as the date of the permanent settlement of Pennsylvania. The "peace policy" toward the Indians, inaugurated by William Penn at the famous elm of Shackamaxon, preserved the Pennsylvania

settlers for many years from the horrors of Indian warfare. Georgia was settled in 1733 by a party of colonists under the command of General James Oglethorpe.

In 1689 the population of the colonies was about 200,000. In 1715 it had more than doubled, being 434,600. In 1733 the number of inhabitants in the twelve colonies first settled was not far from 750,000. For more than a thousand miles the coast was occupied, but the settlements did not extend very far inland. The nature of the country in the interior was not known, nor was there any accurate notion even of the breadth of the continent.

COLONIAL HISTORY [1733–1776].

While the English were busily engaged in settling the coast, the French were exploring the interior of the country, and building forts along the great lakes and down the Mississippi, from Montreal to New Orleans. These French posts finally amounted to more than sixty in number, and their positions were selected with great care. In 1688 the French in America numbered only 11,249, little more than one-twentieth part of the number of the English. Their strength lay in their skill in managing the Indians. Count Frontenac, the French governor of Canada, when he had nearly completed his allotted span of threescore years and ten, was still young enough to sing the war-song and dance the war-dance with his Indian allies. By such condescensions as these the good-will of the savages was conciliated, and an auxiliary force was secured which for a long time fully compensated for the lack of regular troops.

The wars in America between the French and English were generally excited by those between the mother-countries, and were therefore named by the English colonists after the reigning monarch of England. King William's War (1689–1697) consisted of plundering and massacring raids on the part of the French, and ineffectual expeditions against Quebec and Montreal on the part of the English. The main result of Queen Anne's War (1702–1713) was the permanent acquisition by the English of the French province of Acadie, the name of which was changed to Nova Scotia. During King George's War (1744–1748), Louisburg, on Cape Breton Island, then one of the strongest fortresses in America, was captured, after a six weeks' siege, by a force commanded by a colonial general (William Pepperell) and almost entirely composed of colonists. The latter were much disgusted when their conquest was restored to the French in 1748 by the treaty of Aix-la-Chapelle. Still, the exploit was not without its fruits. It revealed the strength of the colonists both to themselves and to the home government. A contest was approaching which was not entirely dependent upon the position of the mother-countries, as it was commenced a year and a half before the beginning of the "Seven Years'

War," and was practically ended, so far as the French and English in America were concerned, two years and a half before the treaty of Paris. We allude, of course, to the well-known "French and Indian War."

In 1754 the free and slave population of the colonies amounted to about 1,425,000. Then, as now, the surplus population was poured out toward the great West, and the English pioneers soon came in contact with the French, who held the line of forts above mentioned. In 1753, George Washington, then not yet twenty-two years of age, was sent to remonstrate with the French commandant on the Ohio. The only result of his mission was the discovery that the French intended to hold their ground. The war began May 28, 1754, with an insignificant skirmish at Great Meadows, in the south-eastern part of Fayette county, Pa. Not more than fifty men were engaged on each side, and the advantage lay with the English detachment, which was led by Washington. Little was accomplished during this year, but in 1755 several expeditions were planned by the English. One against Fort Duquesne (upon the present site of Pittsburg) resulted in "Braddock's defeat." Another against Crown Point, under Generals Johnson and Lyman, suffered a partial defeat, then gained a complete victory at Fort Edward on the same day (Sept. 8), but failed in its main object. In 1756 the home governments took up the quarrel. The earl of Loudoun was appointed commander-in-chief, with General Abercrombie as his lieutenant. The latter was unwilling to make any forward movement in the absence of his chief, who was daily expected, but who did not arrive until late in the summer. In the mean time the vigilant and active Montcalm had taken Oswego, with one hundred and thirty-five pieces of artillery and an immense quantity of military stores. In 1757 Lord Loudoun left New York with the intention of taking Louisburg. Upon learning that the garrison was larger than had been supposed, he stopped to deliberate. The arrival of seventeen French ships of the line in Louisburg harbor put a speedy end to his cogitations, by making an attack wholly out of the question. In the mean time Montcalm had taken and dismantled Fort William Henry.

Such glaring exhibitions of inefficiency naturally awakened the contempt and disgust of the colonists, as well as of the people of England. William Pitt was called to the head of affairs in the home government, and in 1758 vigorous measures were taken. Pitt promised that the expenses incurred by the colonies during the campaign should be reimbursed—a promise which was faithfully kept. Upward of thirty thousand men were raised by the colonists, and the regulars made up the number to fifty thousand. Abercrombie, the commander-in-chief, showed at Ticonderoga, in the first part of the campaign, bungling rashness, then relapsed into masterly inactivity; but Louisburg was taken by Amherst and Wolfe, Frontenac (now Kingston, Ont.) by Colonel Bradstreet, and

Fort Duquesne by an expedition in which Washington had a command. In 1759 the unsuccessful and feeble Abercrombie was superseded by the successful and able Amherst, who took Ticonderoga and Crown Point, while Wolfe, being sent against Quebec, fell on the Plains of Abraham, leaving as a legacy to his country the key of the French dominion in America. In 1760 the war in America was virtually ended by an unsuccessful attempt of the French to recapture Quebec, and by the surrender of Montreal (Sept. 8, 1760), with all other French posts in Canada.

The French and Indian War resulted in something more than a mere conquest of territory. It had served as a valuable school for the military men of the colonies. In that severe school were graduated Washington (as we have seen), Schuyler, Putnam, Stark, and many others who were prominent in the Revolutionary War. They learned something more than tactics. They saw that the British regulars were not invincible, and that the practice of firing point-blank was not superior to the unscientific American habit of taking aim, unless it was the soldier's object to burn as much powder as possible. The military knowledge then acquired was to be of use for a purpose which did not then enter into the mind of one of the colonists. Pontiac, an Ottawa chief, got up a conspiracy (which broke out in June, 1763) for the purpose of expelling the English from the country west of the Alleghanies, which was put down with some difficulty, but there was another conspiracy brewing against the liberties of a growing nation hitherto unconscious of its strength.

George III. ascended the throne of England Oct. 25, 1760. He found in Pitt an obstacle to the carrying out of his views of government, and got rid of him as soon as possible. The first move upon the liberties of the colonies was the authorization of "Writs of Assistance" or general search-warrants, which empowered the king's officers to break open any citizen's store or dwelling to search for smuggled goods, and ordered that sheriffs and others should assist in this work. Few of these were issued, and those were ineffectual. Then George Grenville, the prime minister, procured the passage of the Stamp Act (Feb. 27, 1765), declaring that no legal instrument in writing should be valid unless it bore a government stamp. This act received the royal assent on the 22d of March, at the same time with the "Quartering Act," which obliged the colonists to find quarters, fire-wood, bedding, drink (cider or rum), soap and candles for as many troops as the home government saw fit to send over to enforce the Stamp Act and other tyrannical measures. Robert Walpole, when prime minister in 1732, had said, "I will leave the taxation of America to some of my successors who have more courage than I have." Pitt had said, in 1759, "I will never burn my fingers with an American Stamp Act." The result of Grenville's policy proved the wisdom of these remarks. The effect of these ill-judged measures was to bring about a feeling of

union among the colonists, which was shown by the assembling of a Colonial Congress at New York (Oct. 7, 1765). The king and Parliament were petitioned, and a "Declaration of Rights" was adopted. In the mean time associations had been formed which called themselves the "Sons of Liberty," leagued with the avowed determination to resist oppression to the uttermost. Many of the stamps which came over were hidden or burned, and on the day when the act was to take effect (Nov. 1, 1765) bells were tolled, flags were placed at half-mast, and newspapers were "put in mourning," but there were no officials courageous enough to enforce the obnoxious law. The repeal of the Stamp Act (March 18, 1766) caused great joy in America, and was celebrated with bonfires and public thanksgivings; but with that repeal was connected a "declaratory act," stating that Parliament possessed the power "to bind the colonies in all cases whatsoever."

To carry out this principle, in 1767 an act was passed levying duties on tea, glass, paints, paper and lead. The immediate cause of this act was the taunting language of George Grenville, who was dissatisfied with his failure to enforce the Stamp Act. He said in open Parliament, to the ministry who succeeded him, "You are cowards; you are afraid of the Americans; you dare not tax America!" Townsend, who was in the ministry, replied, "I dare tax America. I will." The colonists renewed the non-importation associations which they had formed to resist the Stamp Act. Troops were sent over to overawe the malcontents and to enforce the collection of the duties, but the trade of England with the colonies suffered so much from the course pursued by the Americans that in 1770 all the duties were taken off, except three pence a pound on tea. This was retained by the express command of the king, who said that "there should always be one tax at least to keep up the right of taxing." Here can be seen the fatal error of the British government. It was not the amount of the taxes, but "the right of taxing," against which the Americans were contending. Arrangements were made by which they could pay the duty and yet buy their tea nine pence a pound cheaper than the rate at which it was sold in England, but they were not to be bribed. On the night of December 16, 1773, three cargoes of tea were thrown overboard in Boston harbor, and in 1774 the home government retaliated by closing the port of Boston, by virtually annulling the charter of Massachusetts, and by ordering that all persons charged in the colonies with murder committed in support of the government should be taken to England for trial.

On the 5th of September, 1774, the First Continental Congress assembled in Carpenters' Hall, Philadelphia. They put forth a "Bill of Rights," an "Address to the People of Great Britain," and various other state papers, which were marked by such signal ability and wisdom that William Pitt, now earl of Chatham, said in the House of Lords, "For

solidity of reasoning, force of sagacity and wisdom of conclusion, no nation or body of men can stand in preference to the general Congress of Philadelphia."

It was soon seen that war was inevitable, and preparations were begun by the Americans, but independence was not even thought of until after the battle of Lexington (April 19, 1775). On the 10th of May, 1775 (the very day upon which Ethan Allen and Benedict Arnold captured Ticonderoga), the SECOND CONTINENTAL CONGRESS convened at Philadelphia. While that body was in session the citizens of Mecklenburg county, North Carolina, in convention assembled, anticipated by more than a year the action of the whole country, and declared themselves "a free and independent people" (May 21, 1775). The general Congress, though not yet prepared to proceed to such extremities as this, voted to raise an army of twenty thousand men, adopted the troops engaged in the siege of Boston as a "Continental army," and elected Washington commander-in-chief (June 15, 1775). Before he could reach his forces the battle of Bunker Hill had been fought (June 17). The breach between the colonies and the mother-country became daily wider. The siege of Boston was so vigorously pressed that on the 17th of March, 1776, the British troops evacuated that city. Within eighty days after that event almost every provincial Assembly had spoken in favor of Independence. On the 4th of July, 1776, in Independence Hall, Philadelphia, Congress adopted that Declaration of Independence* which gave to republican institutions an opportunity for untrammelled development under the genial influence of

A CENTURY OF FREEDOM.

THE FIRST DECADE† [1776–1786].

THE joy of the Americans at hearing of the Declaration was tempered by their thorough appreciation of the magnitude of the struggle in which they were engaged. The expulsion of the British from Boston and the gallant defence of Fort Moultrie (June 28, 1776) gave them reasonable encouragement, but they knew that seventeen thousand foreign troops had been hired by the British government. This had been done because the war was unpopular with the *people* of England, and it was therefore difficult to induce them to enlist. An aggregate land and naval force of fifty-five thousand men had been voted for the American service, and

* As this instrument deserves more than a passing notice, it shall be made the subject of a separate article. [See DECLARATION OF INDEPENDENCE.]

† The word *decade* may mean *ten* of anything, though it is probably used most frequently in the sense in which we now employ it, and shall continue to employ it throughout this work—viz., to denote a period of *ten years*.

before the first of August thirty thousand British troops, many of them veterans, were ready to fall upon the American army of seventeen thousand men, mostly militia. A battle was fought on Long Island (Aug. 27) in which the Americans were defeated with great loss—a defeat which obliged Washington to abandon New York and to retreat up the eastern bank of the Hudson. The army daily diminished. When Washington crossed the Hudson (Nov. 12) he had only four thousand men. When he crossed the Delaware to Pennsylvania (Dec. 8), after having been closely pursued across New Jersey by the British, he had less than three thousand weary, half-starved, dispirited soldiers. The Americans took with them all the boats on the New Jersey side of the river, and General Howe ordered Cornwallis, who commanded in the pursuit, to wait for the river to freeze and cross over on the ice. Within three weeks after leaving New Jersey, at a time when floating ice made the river almost impassable, Washington returned (Dec. 26) with twenty-four hundred men, captured more than a thousand Hessians at Trenton, stole away from the superior forces of Cornwallis, then defeated the reserve of the latter at Princeton, and so managed matters that on the 1st of March, 1777, neither a British nor a Hessian soldier could be found in New Jersey, except at New Brunswick and Amboy. Frederick the Great, king of Prussia, certainly a competent and an impartial judge, declared that the achievements of Washington and his little band, between the 25th of December and the 4th of January following, were the most brilliant of any recorded in the annals of military performances. By the 30th of June, 1777, the British were entirely expelled from New Jersey, but during the remainder of the year the army under Washington suffered great privations and met with several reverses. Howe left General Clinton in command at New York, and sailed with 18,000 men to the Delaware. On the Brandywine the Americans were defeated (Sept. 11), the British entered Philadelphia (Sept. 26), and again defeated the patriots at Germantown (Oct. 4). Washington went into winter-quarters at Valley Forge (Dec. 11), leaving the enemy in possession of Philadelphia. The sufferings of the Americans on their march to Valley Forge, when their course could be tracked on the snow by bloody footprints, and their subsequent privations, form, as has been well said, "some of the gloomiest, as well as some of the most brilliant, scenes in the record of American patriotism." Their hearts had been cheered, however, by good news from the North. Burgoyne started in the latter part of June, 1777, from Canada, intending to come down the Hudson and co-operate with Clinton. He took Crown Point and Ticonderoga (July 6), but Schuyler put so many obstacles in his way, by felling trees, breaking down bridges, etc., that his march toward New York was very slow. A large foraging party which he sent out was defeated at Bennington, Vt. (Aug. 16), he, himself, failed to gain the two battles of Stillwater (Sept.

19 and Oct. 7), and on the 17th of October his forces, numbering 5791 men, were surrendered to General Gates at Saratoga. He kept his promise to eat his Christmas dinner in Albany, but it was as a captive, not as a conqueror.

On the 6th of February, 1778, a treaty of alliance with France was signed at Paris. It is now known that Louis XVI. reluctantly gave his consent to this proceeding, and called his ministers to witness that it was done contrary to his judgment. Congress did not receive the announcement of this treaty until the 2d of May, but had refused in the mean time offers of conciliation made by the British government, being resolved to accept nothing short of independence. A French fleet and army were immediately sent over to the assistance of the Americans, and the British commanders received orders to abandon Philadelphia and the Delaware, and to concentrate their forces at New York. The British army under the command of Clinton, who had superseded Howe, left Philadelphia (June 18), but Washington pursued and intercepted it. A battle was fought at Monmouth (June 28), in which the Americans had the advantage, and which they were prepared to renew on the following day, but during the night the enemy stole away under cover of the darkness. Clinton said in his despatches to England, "I took advantage of the *moonlight* to rejoin General Knyphausen," etc. As the moon was quite new, and had set two hours before Clinton began his march, this statement caused much merriment among the patriots. Little more happened during the remainder of the year except an unsuccessful attempt of the Americans to take Newport, and the massacres perpetrated in the Wyoming, Mohawk, Schoharie and Cherry Valleys. Almost all our historians, with the exception of Lossing and Hildreth, have made such grave errors in describing the "massacre of Wyoming" that we feel it our duty to give a portion of even our limited space to the correction of a few of the more important misstatements. For more than twenty years it has been known that Brant was not present at the battle; that Forty Fort was not burned together with its inmates; and that Colonel John Butler did not answer "*The hatchet!*" when asked what terms he would give the garrison. He granted humane terms by a treaty still in existence, which would have been faithfully carried out had he been able to restrain the Indians. Horrible as the excesses committed really were, they have been much exaggerated in nearly all the accounts published.

During the first six months of the following year the combined efforts of the British and Tories accomplished the temporary subjugation of Georgia. An attempt of the British to take Charleston, S. C., failed (May 11), while the Americans and French were equally unsuccessful in an assault upon Savannah, Geo. (Oct. 9). In the North, the principal events were the capture of Stony Point, on the Hudson (July 16), by "Mad

Anthony Wayue" (oue of the most brilliant exploits of the war), the surprise and capture of the British garrison at Paulus Hook (now Jersey City), and a campaign against the Seneca Indians by General Sullivan, in retaliation for the massacres above mentioned. In the West, Major George Rogers Clarke captured (July 4, 1778) Kaskaskia, Ill., and Cahokia, Ill. (July 9, 1778), and Vincenues, Iud., the following mouth. In January, 1779, the British recaptured Vincenues; but when Clarke heard of it, with 175 men he waded through the snow-flood of the "drowned lauds" of Illinois and received the surreuder of Vincennes from the astonished British garrison, whose amazement could not have been much greater if Clarke and his force had dropped from the clouds. On the 24th of September, 1779, occurred oue of the most desperate naval battles on record, which resulted iu the capture of the British frigate *Serapis* by the American frigate *Bon Homme Richard,* commauded by the famous John Paul Joues.

Sir Henry Clinton sailed from New York for the South (Dec. 25, 1779), aud Washington sent Baron De Kalb and others to aid the southern patriots. The two armies were thus so much weakeued at their headquarters that military operations at the North almost ceased during the year 1780. Clinton took Charleston (May 12), after a warmly-contested siege of more thau six weeks; aud then the couutry was overrun, and appeared to be so completely reduced that Cliuton sailed for New York (Juue 5). Coruwallis was left behind in command, and the cruel Tarleton ravaged the country with his dragoons, in one instance killing so many who had surrendered that "Tarleton's quarter" became a proverbial expression for faithless cruelty. Gates, the conqueror of Burgoyne, was given the chief command in the South; but by his defeat in the disastrous battle of Sauders' Creek, and the subsequent flight of the Americans, he exchanged (as General Lee had predicted that he would) "his northern laurels for southern willows." Still, the southern patriots did uot despair. The famous Marion, Pickens, John Clarke and Sumter carried on a partisan warfare with varying success, and iu a severe engagement at King's Mountain (Oct. 7), 1500 Tories were defeated by 1800 patriots, with a loss of 300 killed aud wouuded and 800 prisoners. The very mention of the name of Beuedict Arnold, now a synouym for traitor, will bring to mind his treason, his plau to deliver West Point into the hands of the British, the capture of Major André (Sept. 22, 1780) by John Paulding, David Williams and Isaac Van Wart (who nobly refused all bribes to let him pass), the execution of Audré and the escape of the arch-traitor. In noble contrast with the course of Arnold is that of some soldiers of the Peunsylvania line, who mutinied (Jan. 1, 1781) on account of heavy arrearages of pay due them and the belief that their term of service, as they understood it, had expired. Emissaries sent by Sir Henry Clinton

(with tempting offers of bribes if they would desert, singly or in a body) were seized and delivered into the hands of General Wayne. By refusing the reward offered for the apprehension of the British agents, the mutineers proved that their motives were not merely mercenary ones—that their love of country had not been quenched even by their alleged wrongs. The cause of this and similar troubles was the depreciation of the Continental currency [see COINS AND CURRENCY], which was owing both to the large amount already issued (more than $200,000,000), and to the immense quantity of cleverly-executed counterfeits set afloat by the British. To one man, Robert Morris, is due the credit of having upheld the national finances during this trying time. We can indeed say *credit*, for frequently his individual credit procured funds when that of Congress was gone.

The year 1781 was practically the last of the war. Greene took the command in the South, and the first severe blow was struck at Cowpens (Jan. 17, 1781) by Daniel Morgan, commander of the famous rifle-corps, who defeated a superior force of the British under Tarleton. Greene retreated into Virginia from the main army under Cornwallis, being saved three times from being taken at a disadvantage by the sudden rising of rivers after he had passed over them. As soon as his force was large enough, he returned and fought a severe battle at Guilford Court-house (Mar. 15). The British remained masters of the field, but were so cut up and dispirited that Charles Fox said, in the British House of Commons, "Another such victory will ruin the British army." The subsequent operations of Greene met with varying success. At Hobkirk's Hill (near Camden, S. C.) he was surprised and defeated (Apr. 25), but retreated in good order. At Eutaw Springs (Sept. 8), the British were at first driven off the field in confusion, then they suddenly renewed the battle and drove the Americans back, and finally they retreated in the night. At the close of the year, the British in the South were confined to Charleston and Savannah. In the mean time Cornwallis had been attempting the subjugation of Virginia (leaving Lord Rawdon to contend with Greene), had been ordered by Sir Henry Clinton to take post near the sea, and in August had commenced fortifying Yorktown. Washington intended to attack New York; but learning that Clinton had been reinforced, he turned his thoughts toward Virginia, wrote deceptive letters to Greene, which he caused to be intercepted by Clinton, and long before the stratagem was discovered was far on his way to Yorktown—too far for successful pursuit. The allied American and French armies reached Yorktown on the 28th of September. They began a regular siege, while the French fleet, under De Grasse, guarded the entrance to Chesapeake Bay, cutting off all hope of supplies or assistance by sea. The siege was vigorously pressed; Clinton could not relieve the garrison, and on the 19th of October, 1781, Cornwallis surrendered the posts of Yorktown and Gloucester, with almost

7000 British soldiers and his shipping and seamen, to Washington and De Grasse.

The surrender of Cornwallis virtually put an end to the war. American armies were still watching the forces stationed in New York, Charleston and Savannah, but actual hostilities were at an end before orders went forth from England (March 4, 1782) for their cessation. On the 11th of July, 1782, the British evacuated Savannah, and on the 14th of December following they left Charleston. A preliminary treaty was signed on the 20th of January, 1783, and a definitive treaty on the 3d of September following. On the 25th of November, 1783, the British army sailed from New York, thereby freeing the United States from the last sign of British domination.

Peace had been secured, independence had been achieved, but the prospects of the new-fledged nation were, apparently, not very brilliant. A heavy debt encumbered the government, and a similar burden rested upon almost every confederation within it. The common danger, which had cemented the union of the States much more closely than the "Articles of Confederation," was gone, and, so far as could be seen, these victorious States, after they had fought and won the battle for independence and the rights of man, after they had established their claims to a free and equal position in the family of nations, were themselves on the very brink of anarchy and political destruction. Under the Articles of Confederation Congress had exclusive power for a number of purposes, but had no ability to execute any of them. They were empowered to make and conclude treaties, but they could only recommend the observance of them. They could appoint ambassadors, but they could not defray their expenses. They could borrow money in their own name on the faith of the Union, but they could not pay a dollar. They could coin money, but they could not import a single ounce of bullion. They could make war and could determine upon the number of troops necessary, but they could not raise a single regiment. In short, they could declare everything, but could do nothing. This was the more unfortunate, as no country ever more required a well-ordered government than the United States immediately after the Revolutionary war. Trade and commerce were destroyed; agriculture had decayed; manufactures were ruined, and the inhabitants of the country were so impoverished that many of them were nearly destitute of clothing. As if to shoot a "Parthian shaft" when relinquishing this country, immediately after the peace was announced the British sent over a great quantity of cloths of an inferior quality, which were sold at an exorbitant price. In this manner almost all the money of the country was collected and carried abroad. "Disordered finance, prostrate commerce and ruined credit" called for a work of organization, the completion of which was reserved for—

THE SECOND DECADE [1786–1796].

President, GEORGE WASHINGTON [1789–1797].

IN September, 1786, commissioners from New York, New Jersey, Pennsylvania, Delaware and Virginia met at Annapolis, Md., to consider the state of the *trade* of the United States, and to digest and report such measures as would enable Congress effectually to provide for the same. Nothing was done with reference to the special object of the meeting, for it was seen that the evils which infested the body politic were too deeply seated to yield to mild measures. Radical constitutional treatment was evidently required. The Annapolis Convention therefore advised a revisal of the constitution of the federal government, to render it adequate to the exigencies of the Union. To secure this revisal a second convention was proposed, to which all the States should be invited to appoint commissioners, to meet at Philadelphia in the following May. This invitation was accepted, and thus originated the government which gave stability and prosperity to the young republic.

The convention was originally called together by a resolution adopted by Congress (Feb. 21, 1787), and met on the appointed day (May 14, 1787), in Independence Hall, Philadelphia, which was thus given another claim to be considered the cradle of the nation; but a quorum was not present until the 25th of May. George Washington was unanimously chosen to preside over the deliberations of this body, in which all of the thirteen original States were represented except Rhode Island and New Hampshire. The former State did not send any delegation, but commissioners from New Hampshire began to attend on the 23d of July. As particular remarks on the Constitution adopted and the subsequent amendments thereto are reserved by our plan for another article [see GOVERNMENT AND LAWS], we shall mention some of the propositions which were *rejected*, some of them by a small majority: That the president and members of the senate should hold office "during good behavior;" that there should be more than one chief magistrate, to prevent the possibility of the incumbent's becoming an elective king; that the President should be elected by the national legislature, "because the people would never concur in a majority, but would generally vote for a citizen of their own State." All of these propositions were successively voted down, though the last—viz., the election of the President by the national legislature—was at first adopted by a vote of seven States to four, while the present method, by means of electors, was at first negatived by six votes to five. On the 17th of September, after nearly four months of deliberation and of debates which were, at times, so warm that it was doubtful whether the members would come to any agreement or not, the present federal Constitution was

adopted. Perhaps its best recommendation was that it did not fully satisfy any party, but a spirit of mutual forbearance was shown which was worthy of all praise. Mr. Hamilton, for instance, expressed his anxiety that every member should sign. "No man's ideas were more remote from the plan than his own, but he could not hesitate between anarchy and convulsion and the chance of good to be expected from the plan." The conventions of the requisite number of States (nine) had ratified the Constitution by the 21st of June, 1788, though not without earnest debate. It is remarkable that a system deemed so imperfect, not only by the mass of its framers, but by many eminent men throughout the country, should have been found to answer so fully the purposes of its formation as to require during a period of seventy years no essential alteration. The first eleven amendments were mere additions, and the twelfth only changed the method of electing the President and Vice-President. The workings of this instrument have been so beneficial that it has deserved the title given it by an eminent legal authority, who styles it "the great charter of our national renown."

At the first election under the Constitution, George Washington received the unanimous vote of the electors (sixty-nine in number), which made him President. Each elector at that time voted for two persons, without designating the office, and the one who received the highest number of votes became President; and the one standing next on the list, or, rather, whose vote was the greatest after the President was chosen, became Vice-President. John Adams, therefore, though he had not received a majority (his vote was 34), was elected Vice-President. The vote was counted by Congress (April 6, 1789), Washington was officially notified (April 14), and he was inaugurated (April 30) at Federal Hall, New York, which was on the site of the present custom-house. New York had become the "federal city" in January, 1785, when Congress (which, after leaving Philadelphia in June, 1783, had successively tried Princeton, N. J., Annapolis, Md., and Trenton, N. J.) first met there. Thomas Jefferson was appointed Secretary of Foreign Affairs (his title was changed to Secretary of State in September, 1789); Alexander Hamilton, Secretary of the Treasury; and Henry Knox, Secretary of War. The offices of Secretary of the Navy and Secretary of the Interior were not yet created, and the Postmaster-General and Attorney-General were not members of the cabinet. Though some historians count the latter official in when giving the first cabinets, he was first considered a cabinet-officer, according to Hildreth, in 1814, but according to another authority, not before Tyler's administration (1841–1845).

During the first portion of Washington's administration, the work of organizing under the new Constitution was vigorously prosecuted, and two political parties made their appearance, viz., Federalists, who wished to make the general government as powerful as was possible without abolishing the

State governments; and Republicans, who wished the general government to have as little power as was possible, without rendering it so weak as to be utterly inefficient. Washington, Adams, Hamilton and Jay were reckoned with the Federalists, and Jefferson, Madison, Gallatin and Edward Livingston were accounted among the Republicans. It is, however, an act of simple justice to state that Washington was never a partisan, and that he was called a Federalist simply on account of his known views, and not because he was a party standard-bearer. The unanimous vote in his favor at two presidential elections is a proof of the truth of this assertion.

Hamilton's office imposed upon him the difficult task of adjusting the national finances. The Continental Congress had incurred a debt of fifty-four millions of dollars, and the debt of the States, incurred in the same cause, amounted to twenty-five millions of dollars. Hamilton advocated the assumption of both of these debts by the general government—a course which was adopted by Congress after a spirited debate. On the 28th of June, 1790, an act of Congress was passed removing the seat of government to Philadelphia, where it was to remain until the year 1800, at which time it was to be permanently fixed at some place on the Potomac, to be selected by the President within certain specified limits. In 1788 Maryland had ceded sixty square miles to the United States, and in 1789 Virginia had ceded forty square miles, within the limits mentioned. The Virginia portion was returned to the State in 1846. Washington performed the duty of selecting the place in the following year, when he was making a tour through the South. In 1790 trouble arose with the Indians of the Northwest. General Harmar was defeated near Chillicothe, Ohio, and in the following year (Nov. 4, 1791) General St. Clair was also beaten, with great loss, in a battle fought eighty miles north of the present city of Cincinnati. General Wayne, the "Mad Anthony" of the Revolution, was given the command of all the troops engaged against the north-western Indians, and by his bravery in the field and his skilful diplomacy, he succeeded in securing a peace which lasted many years. In 1791 (March 4) Vermont was admitted into the Union, and in 1792 (June 1) Kentucky was received into the confederation, making the number of States fifteen. A new apportionment of presidential electors was made in accordance with the first census, which had been taken in 1790. The presidential election of 1792 resulted in the unanimous re-election of Washington, and in the re-election of Adams as Vice-President, by a majority of nine electors; the whole number of electors being 132.

In April, 1793, information was received of the declaration of war by France against Great Britain, Spain and Holland. The general sympathy of the American people was in favor of the sister-republic, but Washington had the wisdom and firmness to issue a neutrality proclamation. In spite of this decided measure, Citizen Genet, the minister from the French re-

public, began to fit out privateers in American ports, and threatened to appeal to the people. This action was, of course, deemed an insult to our government, and Washington promptly demanded and obtained the recall of Genet. In 1794 an insurrection broke out in Western Pennsylvania, caused by an attempt to collect a tax upon domestic distilled liquors, imposed by an act of Congress passed in 1791. This outbreak, which is known in history as the "Whisky Insurrection," was promptly quelled by a force of militia ordered out by the President. In 1795 treaties were concluded with Great Britain and Spain. That with Great Britain was not very satisfactory, and Mr. Jay, the minister who negotiated it, was burned in effigy. The treaty with Spain secured the navigation of the Mississippi to its mouth, and settled the boundary-line between the United States and the Spanish possessions. On the 1st of June, 1796, Tennessee was admitted into the Union, making the number of States sixteen.

THE THIRD DECADE [1796–1806].*

Presidents, GEORGE WASHINGTON, JOHN ADAMS [1797–1801], THOMAS JEFFERSON [1801–1809].

IN September, 1796, Washington issued a farewell address, in which he laid before the nation his views respecting its true policy. This parting advice, which is full of wisdom and patriotism, has ever been regarded by the people of the United States as one of the most valuable legacies left them by the Father of his Country. Had the warnings against party spirit and sectional feeling which are contained in this admirable valedictory been heeded, much subsequent trouble might have been avoided. As the only man upon whom the whole nation could unite was about to retire from public life, the presidential election of 1796 gave an opportunity for the first great struggle between the Federalists and the Republicans. The former nominated John Adams, and the latter Thomas Jefferson, for the presidency. Of the electoral votes Adams received 71 and Jefferson 69. By the provisions of the Constitution as it was, Adams therefore became President and Jefferson Vice-President; and it was seen that among the inconveniences attendant upon that method of election was the strong probability that the President and Vice-President would always be opposed to each other in politics—a circumstance not calculated to secure harmonious action in the administration of the national government.

President Adams was inaugurated on the 4th of March, 1797, and adopted the cabinet of Washington as his own. The first important matter requiring the attention of the government was a difficulty with

* As the first decade began with the 4th of July, the history of each subsequent decade will, of course, begin and end with that date; but that of the last decade, for obvious reasons, will be incomplete.

France arising out of the refusal of the United States to act with France against Great Britain. C. C. Pinckney, the American minister, was ordered to leave France, and the government of that country authorized depredations upon our commerce. A special session of Congress was therefore convened (May 15, 1797), and in July, Pinckney, Elbridge Gerry and John Marshall were appointed envoys extraordinary to adjust all difficulties. They were refused a hearing unless a large sum of money should first be paid into the French treasury, and were told that the refusal to accede to this demand would bring on a war. "War be it, then!" replied Pinckney; "millions for defence, but not one cent for tribute!" Marshall and Pinckney were ordered to leave France, Gerry being permitted to remain because he belonged to the Republican party, the members of which were more favorably disposed toward France than the Federalists were. Seeing that negotiation was in vain, Congress authorized a large army (May, 1798), and appointed Washington its commander-in-chief. A naval department was now formed in the government, with Benjamin Stoddard, of Maryland, as the first Secretary of the Navy, and hostilities were actually commenced on the water, several ships being captured on either side. These spirited measures brought the French government to terms; the Directory made overtures for peace, but went out of power before the American envoys arrived. Napoleon Bonaparte, who held the reins of government as First Consul, readily received the United States ambassadors, and a treaty was concluded (Sept. 30, 1800) by which all disputed matters were satisfactorily adjusted. The army was disbanded; but before the news of peace had come its revered commander-in-chief had gone to his rest (Dec. 14, 1799). Impressive funeral services were held throughout the country, eulogies were delivered, and Congress recommended that the people of the United States should wear a badge of mourning for thirty days.

The presidential election of 1800 was warmly contested. The "Alien and Sedition acts" (of which one empowered the President to order out of the country aliens who were conspiring against the peace of the United States, while the other restrained the liberty of speech and of the press) rendered the Federalist administration unpopular. These acts had been passed at the time when a war with France seemed imminent, and were justified by the Federalists with the plea that the emissaries of the French government were endeavoring to incite an insurrection, and that many of the newspapers were conducted by refugees and adventurers from Great Britain. President Adams was renominated by the Federalists for the presidency, with C. C. Pinckney as candidate for the vice-presidency. Thomas Jefferson and Aaron Burr were the nominees of the Republicans. As each elector voted for two persons without designating the office, and as Jefferson and Burr each received 73 votes, the contest for the presi-

dency was really between them, although Burr had been nominated as a candidate for the vice-presidency. Each had a majority of the 138 electoral votes; but as Congress was not bound to take any notice of the intention of the party who had nominated them, it was considered a tie vote between them *for the presidency*, and the election went, for the first time, to the House of Representatives. A number of the Federalist Congressmen voted for Burr; but after a close contest, which extended through 36 ballots, Jefferson was elected President and Burr Vice-President. This difficulty caused the adoption of the Twelfth Amendment to the Constitution, which obliges the electors "to name in their ballots the person voted for as President, and in distinct ballots the person voted for as Vice-President." This amendment was announced as adopted and ratified Sept. 25, 1804, it having been approved by 13 of the 16 States.

Jefferson's cabinet consisted of James Madison, Secretary of State; Henry Dearborn, Secretary of War; Albert Gallatin, Secretary of the Treasury; and Robert Smith, Secretary of the Navy. On the 10th of June, 1801, the bashaw of Tripoli, a petty prince of one of the Barbary States, in the North of Africa, declared war against the United States. The insolence of the Mediterranean pirates had been for a long time scarcely endurable. Ships of Algiers, Tunis, Tripoli and Morocco captured American vessels; and not satisfied with ordinary piratical plundering, they reduced the crew and passengers of the captured vessels to a condition of servitude. Captain Bainbridge was ordered to cruise in the Mediterranean in order to protect American commerce; but no further notice was taken of the declaration of war until 1803, when Commodore Preble was sent to Tripoli with a large squadron. On the 31st of October, Captain Bainbridge was sent into the harbor of Tripoli to reconnoitre. His vessel (the *Philadelphia*, of 44 guns) advanced too far in eager pursuit of a small Tripolitan gunboat, and struck on a rock. The officers were treated as prisoners of war, but the crew were made slaves. In February, 1804, Lieutenant Stephen Decatur sailed from Syracuse, Sicily, in a small schooner, having on board but 76 men, entered the harbor of Tripoli undiscovered, and recaptured the *Philadelphia*, which was anchored under the guns of a powerful battery. As it was impossible to take her out, she was set on fire and abandoned, Lieutenant Decatur and his party making their escape without the loss of a single man, and with only four wounded. This exploit, one of the most brilliant recorded in the annals of naval warfare, greatly exalted the reputation of the American arms throughout all the piratical States. Tripoli was bombarded several times, a severe action was fought with the Tripolitan gunboats (Aug. 3), but an honorable conclusion to the war was attained by an enterprise directed from another quarter, and conceived with a boldness which was equalled only by the skill and perseverance displayed in its execution. William

Eaton, who had been a captain in the army, was at this time the United States consul at Tunis. He there became acquainted with Hamet Caramanly, the elder brother of the bashaw of Tripoli, who had usurped the government and had driven Hamet into exile. With the latter, Captain Eaton planned an expedition against the reigning bashaw, then returned to the United States to obtain permission and means to undertake it. With these secured, he started from Alexandria (March 6, 1805) with seventy American seamen, Hamet and his followers, and a band of mounted Arabs. His march lay across a thousand miles of desert, yet it was accomplished, with indescribable fatigue and suffering, in fifty days. On the 25th of April he arrived before Derne, a Tripolitan city, which he took by assault, then defended it successfully against an army ten times as numerous as his own. On the 15th of June he again defeated the Tripolitan forces, and threatened to advance upon the capital; but in the mean time (June 4) peace had been made with the reigning bashaw, who was thoroughly frightened by this unexpected attack. Hamet's claims were disregarded, much to his disgust and to that of Eaton, who had hoped to play the part of a "king-maker," and who felt that the deposed prince had deserved better treatment at the hands of our government.

On the 12th of July, 1804, Hamilton died of a wound received in a duel with Aaron Burr on the previous day. As Burr was the aggressor, and Hamilton, who had accepted the challenge with great reluctance, had fired in the air, the affair was justly deemed a murder, and Burr was forced into concealment. At the presidential election which took place in the following autumn, George Clinton was nominated for the vice-presidency, and Jefferson was renominated for the presidency. Since the previous election, Ohio had been admitted into the Union (1802), and a new allotment of presidential electors had been made in accordance with the census of 1800. The electoral vote was 176, of which Jefferson and Clinton received 162, and Pinckney and King, the Federalist candidates, obtained only 14.

The population of the United States by the first census, which was taken in 1790, was 3,929,214. At the expiration of ten years, it was found, upon taking the second census, that the population was 5,318,483, an increase of 35 per cent. In 1806 Aaron Burr began plotting to carry out a plan which he had conceived during the previous year, the description of which, as the arrest of Burr took place in 1807, we reserve for the history of—

THE FOURTH DECADE [1806–1816].

Presidents, THOMAS JEFFERSON [1801–1809], JAMES MADISON [1809–1817].

As early as the winter of 1805–6, Burr had begun to talk of his designs to Captain William Eaton, the hero of the Tripolitan war, encouraged by

the latter's well-known ill-humor on account of the treatment which he and Hamet Caramanly had received. As noted above, the claims of Hamet had been disregarded when a peace was arranged between the United States and the usurping bashaw. Burr had come, however, to the wrong man. Satisfied that Burr was a dangerous person, Eaton went to the President and suggested the appointment of the conspirator to some foreign mission, giving as a reason that if he were not so disposed of there would be an insurrection, if not a revolution, in the West. The President did not think that such a danger was imminent; and as Eaton's relations with the government were not friendly, he did not press the matter further, but related Burr's conversations with him to several congressmen, who regarded Burr's projects as too chimerical and his circumstances as too desperate to furnish any ground for alarm. Burr was arrested at Fort Stoddart, on the Tombigbee River, in the present State of Alabama (Feb., 1807), when it was discovered that Eaton's warning had been dictated by fears which were only too well grounded. During the year 1806 the ex-Vice-President had been endeavoring to attract to his cause all who were discontented, for any reason whatever, with the government; and though he was acquitted at his trial on account of the lack of proper *legal* evidence, there is little doubt that he contemplated the establishment of an independent government, either in the south-western part of the United States or in one of the rich provinces of Mexico.

In 1806 the struggle between England and France caused serious trouble to the commercial interests of this country. The British government, by an "order in council," declared the whole coast of Europe, from the Elbe River in Germany to the port of Brest in France, to be in a state of blockade. Napoleon retaliated by issuing (Nov. 21) the "Berlin decree," declaring a blockade of all the ports of the British islands. Another British order in council prohibited all coast trade with France. American vessels were, therefore, seized by both French and English cruisers—by the French for trading with England, and by the English for trading with France. Our commerce, which had been remarkably prosperous on account of the neutral position of the country, was nearly destroyed. Great Britain also claimed the right to stop and search American vessels on the high seas, ostensibly in order to recover men who had deserted from the British naval service; but if a British war vessel was short of men, its commander had no scruples against the practice of seizing and impressing American seamen. On the 22d of June, 1807, the American frigate *Chesapeake* was chased and attacked by the British frigate *Leopard*. Barron, the American commander, was unprepared for an attack, and after losing three men killed and eighteen wounded, he was brought to, and four men were carried away by the *Leopard*, three of whom, as was subsequently discovered, were native Americans. This outrage caused the issue by the President of a

proclamation prohibiting all British vessels from continuing in or entering the harbors of the United States until reparation was made. In November, 1807, another order in council was issued, forbidding neutral vessels to enter French ports until they had previously stopped at a British port and paid a duty. In December came Napoleon's "Milan decree," confiscating every vessel which should submit to British search or had paid the exacted tribute. Then Congress decreed an embargo which detained in our ports all vessels (Dec. 22, 1807).

The election of 1808 resulted in the choice of James Madison, the Republican candidate, as President, and in the re-election of George Clinton as Vice-President. Madison received 122 electoral votes and Clinton 113. Pinckney and King, the Federalist candidates, received only 47 votes apiece. Before Jefferson went out of office the embargo was raised (Mar. 1, 1809). It had caused great distress in commercial circles, and it rendered Jefferson's administration unpopular with some people who were members of his own party; but his friends claimed that his administration had accomplished much good, dwelling especially upon his foreign policy, and upon the acquisition of Louisiana, which had been purchased from France in 1803 for $15,000,000.

Madison's cabinet consisted of James Monroe, Secretary of State; Albert Gallatin, Secretary of the Treasury; William Eustis, Secretary of War; and Cæsar Rodney, Secretary of the Navy. Troublesome complications with foreign nations gave this administration abundance of work to perform, which required the most skilful of management. The irritation between this country and Great Britain continually increased; and Napoleon issued another decree (Mar. 23, 1810), which declared that all American vessels which had entered French ports since the 1st of March, or which might thereafter enter, were and should be forfeited, together with their cargoes. American merchant vessels were still captured by British cruisers, which were continually hanging around our coasts. By the census of 1810 the population of the United States was found to be 7,239,881, an increase of 36 per cent. since 1800. A free people, increasing so rapidly in population and resources, could no longer endure the insults and injuries of a nation which modestly claimed to "rule the waves," and which attempted to make good that claim by repeatedly transgressing the plainest precepts of international law. The British cruisers did not always escape. The *Little Belt*, a sloop-of-war, was overhauled and hailed by the American frigate *President*, and replied with a shot which struck the mainmast of the latter. The fire was returned, the guns of the sloop were silenced, and her captain was obliged to give a civil answer to the inquiry which had been made by Commodore Rodgers, the American commander (May 16, 1811).

During the summer of 1811 it was discovered that the famous Indian

chief Tecumseh was confederating the tribes of the North-west in a war against the people of the United States, having been incited thereto by British emissaries. General Harrison, who was then the governor of Indiana Territory, marched against him, and defeated him in the bloody battle of Tippecanoe (Nov. 7, 1811). As the British orders in council were still rigorously enforced, as more than nine hundred American vessels had been seized and confiscated since 1803, as insult after insult was being offered to the American flag, while the British press insolently boasted that the United States "could not be kicked into a war," forbearance was no longer a virtue, and on the 18th of June, 1812, an act of Congress was passed declaring war against Great Britain, by a vote of 79 to 49 in the House of Representatives, and of 19 to 13 in the Senate. Thus began what has been appropriately called "the second war for independence," though it is usually known as "the war of 1812." Congress authorized the President to enlist 25,000 regulars, to accept 50,000 volunteers, and to call out, if necessary, 100,000 volunteers for the defence of the coast. The American navy consisted of 8 frigates, 2 sloops, and 5 brigs, while the British navy numbered 1060 vessels, with 144,000 men. Henry Dearborn, an officer of the Revolution, was appointed commander-in-chief of the army, with James Wilkinson, Wade Hampton, William Hull and Joseph Bloomfield as his principal brigadiers. As these officers were all veterans, much was expected of them, but the results of the military operations of the first year of the war were not in accordance with these expectations. General Hull, who was also governor of Michigan Territory, crossed, with 2000 men, the river dividing the United States and Canada (July 12, 1812), issued a pompous proclamation, tendering to the Canadians the blessings of civil and religious liberty, and wasted a month in ruinous delay. In the mean time a large force of British and Indians captured Fort Mackinac, and Hull was forced to retire to Detroit, where he surrendered his whole army (Aug. 16) without standing an assault. Though he was subsequently found guilty of cowardice when tried by a court-martial, his memory has been successfully vindicated. His force had dwindled down to 800 men; and as the British commander had 700 whites and 600 Indians, he wished to avoid the terrible bloodshed which would have ensued from a conflict with a superior detachment containing so many savages. An attempt to invade Canada on the Niagara frontier was equally unsuccessful.

The British government declared all of the American coast except that of the New England States in a state of blockade (Dec. 12, 1812); but no large naval force appeared on our coasts until February, 1813. A naval battle had been fought, however, which retrieved the national honor, and which had a powerful effect upon the public mind in both countries. On the 19th of August the United States frigate *Constitution*, of 44 guns, Captain Isaac Hull, met the British frigate *Guerriere*, of 38 guns, Captain

Dacres, which was cruising around in search of an American frigate, with a flag at her masthead bearing the taunting inscription "No *Little Belt*." The *Little Belt* had carried only 18 guns, while the *President* was a 44 gun frigate, and the taunt implied that an American frigate might disable a small vessel, but that the *Guerriere* was not likely to be beaten. Within forty minutes after the beginning of the fight the *Guerriere* was surrendered, being so shattered that the victor burned her. The *Constitution* was so little damaged that she was ready for action on the following day. Her loss in killed and wounded was 14, while her opponent lost at least 79 in killed and wounded; but according to one account the correct number is 114. Several other British vessels were soon afterward captured. The United States sloop-of-war *Wasp*, of 18 guns, met the *Frolic*, of 22 guns, and forced her to surrender (Oct. 18, 1812) after a battle of 45 minutes, with a loss of 80 killed and wounded, while that of the victor was only 8. The frigate *United States*, Captain Decatur, with a loss of only 11 men killed and wounded, captured (Oct. 25) the British frigate *Macedonian*, the latter losing 104 killed and wounded. These results showed that the American vessels were better handled and that their guns were better served than those of the enemy.

The presidential election of 1812 resulted in the re-election of Madison, with Elbridge Gerry as Vice-President. The electoral vote was 217, it having been reallotted in accordance with the census of 1810. Madison received 128 and Gerry 131 electoral votes, while their opponents, De Witt Clinton and Jared Ingersoll, received, respectively, 89 and 86 votes. This result was regarded as an approval of the war by a majority of the people of the United States, and had a perceptible effect upon the vigor with which military operations were conducted. Harrison, who deservedly possessed the confidence of the Western people, was appointed to the command of the army of the West; Dearborn, with the army of the Centre, was on the bank of the Niagara River; Hampton had the army of the North on the shore of Lake Champlain. The result of the first action of this year was not very encouraging to the Americans. Frenchtown, on the Raisin River, in Michigan, was captured by the Americans under Colonels Allen and Lewis (Jan. 18, 1813), and the arrival of General Winchester, with 300 troops, brought the number of the party up to 800. 1500 British and Indians, under General Proctor, defeated this force, and the greater part of the prisoners were massacred by the Indians, though General Proctor had promised them his protection. "Remember the river Raisin!" became the war-cry of the Kentuckians, who had lost many friends and relatives. In April, General Pike, with 1700 men, captured Toronto, but was himself killed by the explosion of a mine. In May, General Harrison, having 1200 men, was besieged in Fort Meigs, on the Maumee River, in Ohio, for nearly two weeks, by 2000 British and Indians, under General

Proctor and Tecumseh. Colonel Dudley, with 800 men, attempted to relieve the fort, and his attack was at first successful; but while pressing on rashly in the pursuit, he fell into an ambush, and the greater part of his troops were cut off. A sallying-party of 300 men from the fort did somewhat better, spiking the cannon of the principal British batteries and returning with 42 prisoners. The Indians saw that it would be slow work, so they deserted with Tecumseh, their leader, and the siege was soon afterward raised; but on the 21st of July, Proctor and Tecumseh returned with 4000 British and Indians. General Clay, who was in command, gave them a warm reception; and Proctor, leaving Tecumseh to watch the fort, started to take Fort Stephenson, on the Lower Sandusky, in Ohio, which was garrisoned by 150 young men, under Major Croghan, who successfully defended it against the attack of the 500 regulars and 800 Indians under Proctor. The enemy then gave up all hope of taking the American forts until they could gain the ascendency on the lakes. On the 1st of June the American frigate *Chesapeake* was captured by the British frigate *Shannon*, after a desperate battle of only fifteen minutes. It was then that Lawrence, the commander of the *Chesapeake*, who was mortally wounded, uttered those memorable words, "Don't give up the ship!" which served as a motto for Commodore Perry at the battle of Lake Erie, fought on the 10th of September following. The Americans had on this occasion two 20-gun vessels, and seven the combined armament of which amounted to only 14 guns, making in all 9 vessels and 54 guns. The British had six vessels, with 63 guns. After a battle of three hours, during which the *Lawrence*, Commodore Perry's flag-ship, was so disabled that he was obliged to shift his quarters to the *Niagara*, the victory of the Americans was complete, and Perry could say, in a despatch to General Harrison, "We have met the enemy, and they are ours." On the 5th of October, General Harrison defeated Proctor in the battle of the Thames, fought in Canada West, at a Moravian town about 80 miles from Detroit. Tecumseh was killed, his Indians were scattered, and nearly all of the British were killed or captured, Proctor himself narrowly escaping. This ended the war in the North-west. A plan to invade Canada with the armies of the Centre and of the North, the former numbering 7000 men and the latter 4000, was defeated by a lack of concert between their respective generals (Wilkinson and Wade Hampton), and the military operations of the year were ended by the abandonment of Fort George, in Canada, and the burning of Newark (Dec. 10) by the American general McClure, which latter severity was retaliated by the massacre of the garrison of Fort Niagara, which the British surprised on the 19th of December, and the burning of Lewistown, Manchester, Youngstown, Black Rock and Buffalo.

In March, 1814, General Wilkinson, with 4000 men, attacked La Colle

Mill, a fortified stone building situated within the Canadian boundary, three miles below Rouse's Point. The garrison, consisting of 2000 men, successfully defeuded the post; and this failure (whieh was not the first made by General Wilkinsou) caused the suspension of the unsuecessful leader from eommand. The Peaee of Paris now enabled Great Britain to send 14,000 of Wellington's veterans to America. They were not made use of to any great exteut until August. On the 3d of July, Fort Erie, on the Canadian side of the Niagara River, was taken by Geueral Brown, and two days afterward the enemy were met and defeated in the open field at Chippewa. On the 25th of July, 3000 men, under General Seott, defeated 5000 British troops at Bridgewater, or Lundy's Lane. The main result of these battles was the inerease of the eonfidenee of the Amerieans iu their ability to meet the enemy iu the field; but during the months of August and September oeeurred events of greater importauee. The British had been for several months making deseents at various points on the eoast, and ou the 19th of August General Ross landed at Benedict, ou the Patuxent, and marehed on the eity of Washingtou with 5000 men. The little Ameriean army of 1500 seamen and marines, and about as many undiseiplined militia, was easily disposed of (Aug. 24), the eapital was taken and the Capitol was burned, together with the President's house and various other publie and private buildings. Elated by these magnifieent exploits, Ross now approaehed Baltimore, and landed (Sept. 12) within fourteen miles of that eity, while a portion of the fleet went to bombard Fort McHenry. The eity and fort were sueeessfully defended. The British army lost its commander, and the British fleet rendered to the country a real service by the bombardment, whieh drew from Franeis S. Key that beautiful lyric, *The Star-spangled Banner.*

On the 3d of September, Sir George Prevost, with 10,000 men, almost all of them being Wellington's veterans, erossed the boundary-line between the United States and Canada, and laid siege (Sept. 6) to Plattsburg, on Lake Champlain. He was supported by a squadron of 17 vessels, with 95 guns and 1050 men. The Amerieau squadron, whieh was eommanded by the gallant MeDonough, eousisted of 14 vessels, earrying 86 guns and 826 men. Brigadier-General Macomb, who was in eommaud at Plattsburg, ealled to his aid the militia of New York and Vermont. Between the 6th and the 11th of September the British made several attempts to eross the river Sarauae, but they were constantly driven baek, and on the 11th of September a battle was fought upon land and lake. In two hours and tweuty minutes from the first attack the whole British fleet was surrendered. The land forees fought uutil dark, but during the night Prevost hastily retreated, having lost 2000 in killed, wounded aud prisoners, aud 500 meu who deserted with the intention of settling in a eountry the love of whieh inspirited its inhabitants to sueh deeds of valor. The loss of the Ameri-

cans in the land-battle was only 121, and in the naval battle the Americans lost 110 killed and wounded, the British 194 killed and wounded and 856 prisoners. Negotiations for a peace, which had been slowly dragging along at Ghent, were hastened by the news of this victory, and a treaty was signed (Dec. 24, 1814); but before the news of it could cross the ocean, General Pakenham, with 12,000 British soldiers, attacked New Orleans (Jan. 8, 1815), which was defended by General Jackson, who had 6000 troops, strongly entrenched, 3000 of them being Kentucky riflemen. The British were defeated, with a loss of 2000 killed and wounded, while the American loss was only *seven killed and six wounded.* It is a remarkable fact that by the Treaty of Ghent the United States did not obtain a single concession upon the two principles for which they began the war—that the flag covers the merchandise, and that the right of search for deserters is inadmissible. Still, the moral effect of the war, and especially of the victory of New Orleans, secured both points, for British commanders discontinued the practices which had given rise to the second struggle for independence. During the year 1815 a war was carried on with Algiers, to which country the United States had paid an annual tribute for twenty years, without securing that freedom from injury which had been guaranteed in return. The Dey of Algiers was humbled, and forced to make a new treaty without the tribute. Tunis and Tripoli were also brought to terms; and Commodore Decatur accomplished in a single cruise what the combined powers of Europe had not dared to attempt.

THE FIFTH DECADE [1816–1826].

Presidents, JAMES MADISON [1809–1817], JOHN QUINCY ADAMS [1825–1829].

THE presidential election of 1816 resulted in the choice of James Monroe, of Virginia, as President, and Daniel D. Tompkins, of New York, as Vice-President. They were nominated by the Republican party, and received 183 of the 217 electoral votes, the remaining 34 being given to Rufus King, the nominee of the Federalist party. Indiana was admitted into the Union this year, being the nineteenth State (Dec. 11). The cabinet of President Monroe consisted of John Quincy Adams, Secretary of State; William H. Crawford, Secretary of the Treasury; John C. Calhoun, Secretary of War; Benjamin Crowninshield, Secretary of the Navy; and William Wirt, Attorney-General. This administration had to perform the difficult task of restoring order after such confusion and disorganization as is attendant upon the continuance and conclusion of any war. Manufactures had been stimulated to an extraordinary degree by the "war-prices" and the almost entire cessation of the import trade; but when peace was declared, and the overloaded warehouses of England flooded the market

with cheap goods, widespread ruin ensued, and thousands of men were thrown out of employment. This was, however, a blessing in disguise; a steady stream of emigration was forced toward the West and South, and before the close of Monroe's second term four flourishing Western or Southern States were admitted into the Union, viz., Mississippi (Dec. 10, 1817), Illinois (Dec. 3, 1818), Alabama (Dec. 14, 1819), and Missouri (March 2, 1821).

In 1818 the Seminole Indians of Florida, who were attacking settlers on the frontiers of Georgia, were temporarily subdued by General Jackson, so that they abstained from any serious outrage until 1835. The leading event during Monroe's first term was the debate concerning the admission to the Union of Missouri. One party wished the prohibition of slavery to be made a condition of admission, while the other opposed any such restriction. On the 21st of February, 1821, the famous Missouri Compromise was adopted, which permitted slavery in Missouri, and in all territory south of thirty-six degrees and thirty minutes of north latitude, and for ever prohibited it north of that line. At the presidential election of 1820 Monroe received all but 1 of the 231 electoral votes; and Tompkins was also re-elected, by a vote of 218. In February, 1821, a treaty with Spain was ratified by which Florida was ceded to the United States for $5,000,000, and General Jackson took possession (July 1) as the first territorial governor. In 1822 the United States recognized the independence of the republics of Mexico, Chili, Buenos Ayres and Colombia. In the following year the President promulgated the famous "Monroe doctrine," declaring in his annual message that, "as a principle, the American continents, by the free and independent position which they have assumed and maintained, are henceforth not to be considered as subjects for future colonization by any European power." In August, 1824, La Fayette revisited America and spent eleven months in this country, during which he took a tour of more than 5000 miles, receiving everywhere an enthusiastic welcome. Congress voted to him $200,000 and a township of land in Florida; and when he returned to France, a United States vessel was placed at his disposal.

The presidential election of 1824 was warmly contested. The Federalist party as an organization was extinct, and the candidates represented different sections of the country, being John Quincy Adams in the East, William H. Crawford in the South, Andrew Jackson and Henry Clay in the West. The electoral vote was now 261, making 131 votes necessary for a choice. Jackson received 99 votes; Adams, 84; Crawford, 41; and Clay, 37. As no one had received the requisite vote, the election went to the House of Representatives. The vote was taken by States, the number of States being 24; and 13 States voted for Adams, 7 for Jackson and 4 for Crawford. Clay had withdrawn in Adams' favor; and when he afterward accepted from the successful candidate the position of Secretary

of State, his enemies made charges of bargain and corruption, which were probably unfounded. The remaining members of Adams' cabinet were Richard Rush, Secretary of the Treasury; James Barbour, Secretary of War; Samuel L. Southard, Secretary of the Navy; and William Wirt, Attorney-General. The most exciting topic, at the beginning of the administration, was a difficulty between the national government and the governor of Georgia concerning the removal of the Creek and Cherokee Indians from that State. The United States had made a treaty with the Indians, by the terms of which the latter agreed to go west of the Mississippi. Thinking that this stipulation was not quickly enough enforced, Governor Troup assumed the right to attend to the matter himself, and began to have the lands of the Indians surveyed and to take measures for removing the savages. The national government resented this interference, and took the attitude of defenders of the Indians. A civil war was threatened; but better counsels prevailed, and the controversy was settled by the gradual removal of the Indians and the purchase, at a reasonable rate, of the lands in dispute. In October, 1825, the Erie Canal was completed. This was one of the grandest works of internal improvement which had, up to that time, been anywhere projected. Constructed by the State of New York alone, at an expense of seven millions of dollars, its revenues soon extinguished its debt, and it did much to assist in the development of the West by affording facilities for transporting agricultural and other productions to the seaboard. De Witt Clinton, who was the prime mover in this great enterprise, consulted ex-President Jefferson beforehand, wishing to obtain his weighty opinion in its favor. Jefferson replied: "Your plan is a noble one—magnificent—and may be carried into effect *a hundred years hence.*" Still, Clinton persevered; and his failures as a politician were nobly redeemed by this work, which proved that he was a far-seeing statesman. On the 4th of July, 1826, the semi-centennial anniversary of American independence, occurred a remarkable coincidence: Thomas Jefferson, the author of the Declaration of Independence, and John Adams, its principal supporter in the Continental Congress, died on that day, and at almost the same hour. They had both been members of the committee which framed the Declaration; both had signed it, both had been foreign ministers, both had been Vice-Presidents and then Presidents of the United States, and both had lived to a great age, the age of Jefferson, at the time of his death, being 83 years, that of Adams, nearly 91. These numerous coincidences, which were dwelt upon in the eulogies and funeral orations which were pronounced in many places throughout the Union, "struck to the hearts of the American people an indescribable feeling of awe and astonishment.

THE SIXTH DECADE [1826–1836].

Presidents, JOHN QUINCY ADAMS [1825–1829], ANDREW JACKSON [1829–1837].

DURING the latter part of the year 1826 and the whole of 1827 affairs moved along so quietly that the period mentioned "is conspicuous," says a historian, "in the chronological tables for its absence!" In 1827, however, a national convention was held at Harrisburg to discuss the tariff question. Only four of the Southern States were represented. The result of the convention was a memorial to Congress asking for an increase of duties on several articles then manufactured in the United States. Congress took the matter in hand during the following session, and on the 15th of May, 1828, a tariff law was passed which laid heavy protective duties on woolen and cotton fabrics. This law was very distasteful to the Southern people, who denounced it as oppressive and unconstitutional, and it was afterward the cause of serious difficulties between the North and the South. The presidential election of 1828 was warmly contested. John Quincy Adams and Richard Rush ran against Andrew Jackson and John C. Calhoun. Jackson received 178 of the 261 electoral votes, and Adams the remaining 83. Jackson's cabinet consisted of Martin Van Buren, Secretary of State; Samuel D. Ingham, Secretary of the Treasury; John H. Eaton, Secretary of War; John Branch, Secretary of the Navy; John McPherson Berrien, Attorney-General; and William T. Barry, Postmaster-General. The Postmaster-General was at this time made a cabinet officer. President Jackson's first term was a stormy one. In his annual message he took strong ground against the renewal of the charter of the United States Bank [see COINS AND CURRENCY], and the wholesale removal of officials and reappointment of political friends, which he introduced, gave rise to a great deal of hostile criticism at the time, and served as an example which succeeding Presidents have been only too ready to follow. The first six Presidents, during their combined term of forty years, removed only seventy-four officials, and most of them for sufficient cause, while President Jackson, in one year, removed four hundred and ninety postmasters and one hundred and sixty-seven who filled other positions under the government.

On the 29th of January, 1829, Senator Foot introduced a resolution with reference to the sale of the public lands, of which more than a hundred millions of acres which had been surveyed remained unsold. As the average annual sales were only about a million of acres, it was thought by the supporters of the resolution that the land-market was abundantly stocked, and that the office of surveyor-general might be abolished without detriment to the public interest. Mr. Hayne, of South Carolina, made

upon this occasion the celebrated speech which brought about his debate with Webster upon the much more important question of State-rights. A claim of the State of Georgia to lands held by the Cherokee Indians caused the promulgation by the President of a remarkable "peace policy" toward the savages. He said that regard to the national honor brought forward the question whether something could not be done to preserve the race. He suggested that an ample district should be set apart and guaranteed to the Indian tribes, each to have distinct control of the part designated for its use, free from any interference of the United States, except for the purpose of preserving peace on the frontier. The grand difficulty of the project—one which would have caused almost any one else to give it up in despair—President Jackson met in a characteristic manner. He said: "The emigration should be voluntary, for it would be as cruel as unjust to compel the aborigines to abandon the graves of their fathers and to seek a home in a distant land." The undertaking was sanctioned by Congress, the President was empowered to carry it out, and thenceforth it was his settled policy to cause the Indians to emigrate voluntarily for their own good. In January, 1831, the disputed northern boundary-line between the United States and British America was settled by the King of the Netherlands. In April the whole cabinet, with the exception of the Postmaster-General, resigned, and the President selected as their successors, during the following summer, Edward Livingston, Secretary of State; Louis McLane, Secretary of the Treasury; Lewis Cass, Secretary of War; Levi Woodbury, Secretary of the Navy; Roger B. Taney, Attorney-General. On the 4th of July ex-President Monroe died. It is considered (and with reason) a remarkable coincidence that no less than three ex-Presidents have died on the same day, and that day the anniversary of our national independence. On the 1st of October a free-trade convention met in Philadelphia, and on the 26th of the same month a tariff convention met in New York. Both adopted memorials to Congress requesting legislation favoring their respective views. In April, 1832, the "Black Hawk War" broke out between the United States and the Winnebago Indians, the latter being led by the chief Black Hawk, his son, and "the Prophet," a brother of Tecumseh, who was always engaged in inciting the massacres and plots of the savages. The leader last named was a shrewd impostor, and it is said that, having learned from a white man's almanac the time of an eclipse of the sun, he told his people that he could darken the sun by his enchantments; and selecting the time given in the almanac, his apparent success greatly increased his influence among his red brethren. After committing many ravages, the Indians were defeated in several battles, Black Hawk and other chiefs were captured (Aug. 27), and after being detained for a few months they were carried through the principal cities of the United States, and were then sent home to their people, fully convinced of the folly of attempting

to contend against the power and discipline of the whites. During this year Asiatic cholera paid its first visit to America. It first broke ont in Canada (June 9), and it seemed to follow the great highways of travel, reaching New York on the 26th of June, and many hundreds of victims fell before its force was exhansted. In the presidential election of 1832 Jackson and Van Buren ran against Clay and Sergeant, and were elected, receiving 219 of the 286 electoral votes. On the 19th of November, just two weeks after the election, a convention met at Columbia, S. C., and issued the famons "Nullification Ordinance," which declared that the tariff acts were unconstitutional, and therefore *null and void.* They made preparations for military resistance to the enforcement of the obnoxious laws, and civil war appeared inevitable. President Jackson immediately took measures to meet the crisis. He caused Castle Pinckney and Fort Moultrie to be strongly garrisoned; he issued a proclamation (Dec. 10) denying the right of a State to nullify any acts of the federal government; and it is said that he privately sent word to the leaders of the "nullifiers" that if they did not desist from their rash course he was ready to take the field in person, and to appear in South Carolina at the head of a large army. The effect of these decided measures was soon seen. The authorities of Sonth Carolina agreed not to oppose the collection of the duties before the 1st of March, 1833; and when that day arrived, Mr. Clay's compromise bill (which provided for a gradual reduction of the duties, and their total extinction by the 30th of September, 1842) had passed both branches of the national legislature, and soon afterward it received (March 3) the signature of the President. In his annual message of 1832 President Jackson recommended the removal of the public funds deposited in the United States Bank, and the sale of the stock which the United States held in that institntion. Congress refused to authorize the measure, so the President took the responsibility, after the adjournment of that body, of requesting William J. Duane, the Secretary of the Treasury, to withdraw from the bank, and to deposit in certain State banks, the government deposits, amounting to $10,000,000. Duane refused, and was dismissed from office (they had no Tennre-of-office Act then), and Roger B. Taney, then Attorney-General and afterward Chief-Jnstice of the United States. was appointed in his place. Mr. Taney removed the deposits, as directed by the President, and the result was sudden and widespread commercial distress—a result which confirmed the President in his opinion that the bank was a dangerous institution. Intense excitement prevailed throughont the conntry. The Senate, by a vote of 26 to 20, passed a resolution censuring the administration; but the Honse of Representatives supported the President, who persevered and triumphed. The resolution of censure was afterward (March 28, 1837) expunged from the jonrnal of the Senate; and the wisdom of Jackson's course has since been almost universally

acknowledged. The leader of the few who dissent from this opinion is Mr. James Parton, who even in his lectures still pursues the memory of "Old Hickory" with unrelenting severity. At the time the course of the President produced a perceptible diminution in the strength of the administration. A number of his supporters joined the opposition party, and the combined force assumed the name of "Whigs," while the administration party retained the name of "Democrats." In 1834 the Seminole Indians of Florida showed an unwillingness to be compelled to voluntarily leave their homes in accordance with the "peace policy" which had been sketched out by the President. When General Thompson, the government agent, reported this state of affairs to the War Department, he was told that the Seminoles were to be removed for their own benefit, and could not be suffered to remain. Two chiefs who were willing to submit were killed; the famous half-breed chieftain Osceola took command of the Seminoles and their allies, and a war was inaugurated which lasted seven years and cost 1466 lives and $10,000,000,* which was twice as much as Florida originally cost. The wife of Osceola was the daughter of a fugitive slave-woman, and was claimed as a slave and carried off by the owner of her mother. Osceola was heard uttering some threatening expressions, and was seized by order of the Indian agent, General Thompson, and put in irons. Being released soon afterward, he dissembled his wrath, and was even entrusted by Thompson with several pieces of service; but six months after his release he surprised General Thompson and several friends who were having a convivial party at a house which was a short distance from Camp King (Dec. 28, 1835). Osceola was afterward captured by treachery, after having kept up the war for nearly three years, and died at Fort Moultrie (Jan. 31, 1838); but he had infused so much of his indomitable spirit into the savages that the war continued for four years after his death, with the results above given. On the 15th of June, 1836, Michigan and Arkansas were admitted into the Union, making the number of the States twenty-six; and on the 23d of the same month the course of President Jackson with reference to the United States Bank was fully endorsed by the passage of an act of Congress making State banks the depositories of the government funds.

* We have given the lowest estimate of the cost of this war. Another estimate makes it $15,000,000; and still another, which is contained in the same work from which the one given in the text is taken, fixes the cost of this contest at the enormous sum of $40,000,000. The two chiefs whose murder is mentioned were killed by their own people, because they were in favor of compliance with the wishes of President Jackson.

THE SEVENTH DECADE [1836–1846].

Presidents, ANDREW JACKSON [1829–1837], MARTIN VAN BUREN [1837–1841], WILLIAM HENRY HARRISON [March 4–April 4, 1841], JOHN TYLER [1841–1845], JAMES K. POLK [1845–1849].

ON the 11th of July, 1836, a circular was issued from the treasury department, "by order of the President," instructing the receivers of public money to take nothing but gold and silver (with the exception of Virginia land-scrip in certain cases) in payment for the public lands. Large purchases of public lands had been made on speculation with money which had been borrowed out of State banks, which institutions now held on deposit a large amount of the public funds. The "specie circular," as it was called, cut short the operations of the speculators; but as everything was "going at high pressure," it caused great distress among our merchants and manufacturers. Congress partially repealed it, but President Jackson was as firm as usual, and practically vetoed the bill which modified the circular by keeping the former in his hands, without signing it, until after Congress adjourned. The presidential election of 1836 resulted in the election of Martin Van Buren as President, he having received 170 of the 294 electoral votes. The remaining 124 votes were divided as follows: W. H. Harrison, 73; Hugh L. White, 26; Daniel Webster, 14; W. P. Mangum, 11. Richard M. Johnson, who had run for the vice-presidency in company with Van Buren, received only 147 votes (just half of the whole number); Francis Granger, 77; John Tyler, 47; William Smith, 23. The election for Vice-President went, of course, to the Senate, and Johnson was elected by that body. President Van Buren's cabinet consisted of John Forsyth, Secretary of State; Levi Woodbury, Secretary of the Treasury; Joel R. Poinsett, Secretary of War; Mahlon Dickinson, Secretary of the Navy; Amos Kendall, Postmaster-General; Benjamin F. Butler, Attorney-General. The first important event during this administration was "the panic of 1837." The speculation mentioned in the history of the preceding decade had reached its climax. City lots were the rage. The old cities were extended on paper to limits which were far beyond any immediate requirements either for business purposes or for residences, and new cities were mapped out which presented a fine appearance on paper, but which did not appear so attractive to the unfortunate purchaser, who frequently discovered, when he went to view his possessions, that they were situated in "the wild howling wilderness." Fortunes were made in an hour and by a single bargain. There was only one result to be expected from the abandonment of the regular channels of trade. At first every kind of business was stimulated to an extraordinary degree; then came the reaction. The failures in the city of

New York during this panic amounted to more than $100,000,000. In New Orleans, during a period of two days, houses stopped payment which owed an aggregate of $27,000,000. On the 10th of May all the banks of New York stopped specie payments—an example which was speedily followed throughout the country. Widespread distress ensued, and the administration was appealed to for aid. An extra session of Congress was called, and met (Sept. 4) to consider measures for relief. Treasury-notes were issued to the amount of $10,000,000, and the financial atmosphere, cleared up to some extent by this storm, gradually approached a healthier condition. One of the most important results of this monetary crisis was the recommendation by President Van Buren (in his message at the opening of the special session of Congress) that the government should for the future keep its money in its own hands by means of a sub-treasury, or, as it was called by its supporters, an independent treasury; so that there would be an entire separation of the business and funds of the government from those of the banks. This scheme met with vehement opposition. Both at this session and at the subsequent session of Congress the bill was passed in the Senate, but lost in the House of Representatives. Its opponents regarded it as putting the public treasure entirely in the power of the executive, and its unpopularity was probably the principal cause of Mr. Van Buren's losing the next presidential election. Still, the administration persevered; this important question was debated at several subsequent sessions, and the bill finally became a law on the 4th of July, 1840. In December, 1837, a revolt in Canada caused the organization of a filibustering expedition, designed to assist the insurgents in achieving the independence of the Canadas. A party of 700 men, well provisioned and provided with 20 pieces of cannon, took possession of Navy Island, on the British side of Niagara River, two miles above the Falls. They fortified their position so strongly that they were able to defend it against the attack of Sir Francis Head, the British commander. They had hired a small steamer (the *Caroline*) to bring them supplies from the American side, and seemed to be on the high road to success; but a party of Canadian loyalists captured the steamer, set her on fire and sent her over the Falls while in full blaze; and the neutrality proclamations, which were at once issued both by the President of the United States and by the governor of New York, were more effectual than had been expected. Navy Island was evacuated, Van Rensselaer of New York, who had commanded the garrison, was arrested, and though many people went across the frontier and joined the insurgents, no movement was again attempted by any organized band as large as that which captured Navy Island. Yet secret revolutionary societies, called "Hunters' Lodges," continued to be formed for several years, with the design of assisting Canadian insurrections; and it was four years before the death or exile of the leaders of the revolt and

the firm stand taken by the United States government put an end for a time to these breaches of international law. Another difficulty arose, however, between the government of the United States and that of Great Britain, which threatened more serious consequences. We refer to the "North-eastern Boundary" question, which involved the ownership of a tract of land containing seven millions of acres, or about twice the area of the State of Connecticut; also a right of way across from the province of New Brunswick (either by, or south of, the St. John's River) to Quebec, on the St. Lawrence. This dispute, which had once been partially decided by the King of the Netherlands, in 1831, broke out afresh, and waxed so warm that in March, 1839, an act of Congress was passed empowering the President to call out 50,000 volunteers; authorizing the equipment and reinforcement of the navy; appropriating $10,000,000 for the purpose of executing the provisions of the act; and finally, in the interest of peace, making an additional appropriation of $18,000 for the salary and outfit of a special minister to Great Britain, should the President deem it expedient to appoint the same. At the time when this act was passed the troops of Maine were already assembled, and were hastening to the disputed territory, when the discussion took a peaceful turn. General Scott was ordered to take command of all military operations and "to preserve peace;" and some of the subsequent proceedings seem, at the present day, almost ludicrous. Engineers were sent over by the British government, who made a survey, working for full three months, and then returning to England, leaving their task unfinished. They had learned enough, however, to make a report occupying, in print, fifty folio pages, in which report the right of Great Britain to *all* of the disputed territory was, in their opinion, conclusively proved. Thereupon Lord Palmerston communicated this valuable decision of the engineers to the American government in a courteous but decided note. The effect of said note was just the reverse of what the writer desired. It excited the ambition of the American government to equal or surpass, if possible, the wonderful exploit just narrated. Two engineers conducted the British survey; *five* were entrusted with the task of going over the ground and searching for the boundary-line with American spectacles. The search was, of course, successful, and the United States engineers reported that *all* of the disputed land certainly belonged to the United States; and their report was so satisfactory that it was toasted, together with its authors, at a public dinner given in their honor. Finally, the question was settled, in the beginning of the year 1842, by Daniel Webster, who was then Secretary of State, and Lord Ashburton, the British ambassador. Both sides made concessions, and the decision was satisfactory to all reasonable men on either side of the Atlantic.

The presidential election of 1840 was warmly contested. The Whigs concentrated all their strength on William Henry Harrison for President

and John Tyler for Vice-President. The Democrats renominated Van Buren for the presidency, leaving the question of the vice-presidency open. Harrison and Tyler each received 234 of the 294 electoral votes. Van Buren received 60 votes, and James K. Polk, R. M. Johnson and L. W. Tazewell received 20 votes apiece for the vice-presidency. President Harrison's cabinet consisted of Daniel Webster, Secretary of State; Thomas Ewing, Secretary of the Treasury; John Bell, Secretary of War; George E. Badger, Secretary of the Navy; Francis Granger, Postmaster-General; and J. J. Crittenden, Attorney-General. The President's inaugural speech was well received by all parties. Everything promised an administration honorable to the executive and useful to the country; but just one month after taking the oath of office the President died, and for the first time since the formation of the Constitution the duties of the chief magistracy devolved upon the Vice-President. The only important official act performed by the deceased President had been the issuing of a proclamation calling an extraordinary session of Congress, which commenced its session on the appointed day (May 31, 1841), and took up the subjects of finance and revenue, upon which it had been convened to legislate. The subtreasury act was repealed, and a bankrupt act was passed to relieve the victims of the recent panic. An attempt was made to secure a charter for another United States Bank (a favorite Whig measure), but two bills for that purpose were vetoed by President Tyler, who thereby secured the ill-will of the party which had elected him, and furnished the American vocabulary with a new word ("Tylerize") wherewith to describe the course of a Vice-President who, having been raised to the presidency by the death of the incumbent of that office, forthwith refuses to support the pet schemes of those to whom he is indebted for his election. The second veto was the cause of the resignation of the whole cabinet, with the exception of the Secretary of State. Mr. Webster was severely criticised for remaining in office; but as he was then engaged in settling the boundary question, the negotiations concerning which would certainly have fallen through for the time being had he resigned, the sober judgment of posterity has awarded him praise rather than blame, as it is now known that his motive was patriotism and not a love of office. The vacancies were filled as follows: Walter Forward, Secretary of the Treasury; John C. Spencer, Secretary of War; Abel P. Upshur, Secretary of the Navy; Charles A. Wickliffe, Postmaster-General; and Hugh S. Legaré, Attorney-General. On the 3d of March, 1843, Congress made an appropriation of $30,000 to enable Professor Morse to erect an experimental telegraph between Washington and Baltimore. This was the first electric telegraph in the world which was of practical use and not a scientific toy. The claims of America for the honor of having been in advance of Europe in this important matter are discussed in another article [see AMERICAN INVENTIONS]. In June,

1843, an insurrection broke out in Rhode Island, caused by a movement to adopt a new State constitution. The State government had been carried on for 180 years under the old charter granted by Charles II. Disputes arose as to the manner of making the change, and two parties were formed—the "suffrage" party and the "law-and-order" party. Each faction formed a constitution and elected a governor and legislature, then armed in defence of their respective claims. Each party rebelled against the authority of their opponents; but as the "suffrage" party were defeated, and the governor whom they had elected (Thomas W. Dorr) was arrested, tried for and convicted of treason, and sentenced to imprisonment for life, history, with great impartiality, has deemed them the rebels, and has given to the contest the name of "Dorr's Rebellion," which name is, however, possibly correct, as Dorr was the first to appeal to arms. In 1844 the Democrats nominated James K. Polk for the presidency, and George M. Dallas for the vice-presidency. The Whig nominees were Henry Clay and Theodore Frelinghuysen. The chief questions at issue were the annexation of Texas and the claim for the parallel of 54° 40′ for the northern boundary of Oregon. The Democrats favored the former measure; and their opinion on the boundary question can be learned from their party watchword—"54-40 or fight." Polk and Dallas received 170 electoral votes; their opponents, 105. Mr. Calhoun, who was the last Secretary of State in President Tyler's *changeable* cabinet (the six offices of which were occupied by no less than twenty men during three years and eleven months), had negotiated with Texas a treaty of annexation in April, 1844, which was rejected by the Senate by a vote of 35 to 16. On the 25th of January, 1845, joint resolutions for annexing Texas were adopted by the House of Representatives by a vote of 120 to 98. They passed the Senate three days before President Polk's inauguration, and were immediately signed by President Tyler. President Polk's cabinet consisted of James Buchanan, Secretary of State; Robert J. Walker, Secretary of the Treasury; William L. Marcy, Secretary of War; George Bancroft, Secretary of the Navy; Cave Johnson, Postmaster-General; and John Y. Mason, Attorney-General. Texas assented to the annexation resolutions (July 4, 1845), General Taylor was sent to the Rio Grande, and a collision with the Mexicans occurred (April 24, 1846). As soon as Congress learned that hostilities were actually commenced, the sum of $10,000,000 was appropriated for war purposes, and the President was authorized to call out 50,000 volunteers, these measures receiving a vote of 142 to 14 in the House, and of 40 to 2 in the Senate (May 11, 1846). The brilliant victories of Palo Alto (May 8) and Resaca de la Palma (May 9) had been in the mean time gained by General Taylor; and thus the country was fairly launched into the Mexican war, the account of which belongs to—

THE EIGHTH DECADE [1846–1856].

Presidents, JAMES K. POLK [1845–1849], ZACHARY TAYLOR [March 4, 1849–July 9, 1850], MILLARD FILLMORE [July 9, 1850–March 4, 1853], FRANKLIN PIERCE [1853–1857].

THE Secretary of War, assisted by General Scott, devised a plan of invasion which was greater in the territorial extent of its operations than any other recorded in history. The Pacific coast of America was to be attacked by a fleet, which was obliged, of course, to go around Cape Horn. An "army of the West" was to invade New Mexico and California, co-operating with the fleet. An "army of the Centre" was to march into the heart of Mexico and co-operate with General Taylor's forces, which were known as "the army of occupation." Volunteers were not lacking. Before the close of July, 1846, 12,000 men were received into the service, 9000 of whom were despatched to the aid of General Taylor. An effort was also made to secure a powerful friend in the enemy's camp. Santa Anna was, at the beginning of the war, an exile at Havana. The American commodore commanding the gulf squadron was instructed to connive at his return to his native land, as it was thought that he would immediately form a "peace party" which would, perhaps, bring about a close of the war upon terms advantageous to our government. The Mexicans were in want of an able leader, so they deposed Paredes and elected Santa Anna President. He showed his gratitude to the United States by raising and equipping an army of 20,000 men and taking all other measures required for a vigorous prosecution of the war. His army was not ready until December; and in the mean time Taylor had taken Monterey (Sept. 23), after several days of hard fighting, having previously effected a junction with General Wool. The latter brought 3000 men whom he had been disciplining at San Antonio, Texas. General Worth, with 900 men, had taken Saltillo (Nov. 15, 1846), and Taylor was making preparations for a vigorous winter campaign, when he received an order from General Scott to send him a large portion of his best officers and troops to assist against Vera Cruz, and he was also directed to act thereafter only on the defensive. Having shown at Monterey that he could "take a city," General Taylor displayed at Victoria, upon receiving the above order, his ability to "rule his spirit" by promptly obeying the command. He was speedily rewarded. His whole force, including the troops of General Wool, did not amount to 5000 men. Santa Anna advanced upon him with four times that number of well-equipped troops. Taylor determined to fight the Mexicans, and selected (Feb. 21, 1847) a mountain defile near Buena Vista for his battle-field. On the following day the Mexicans arrived, and Taylor was summoned to surrender within an hour. This request met with a courteous but firm

refusal. Both armies slept on their arms, and early next morning began a desperate and bloody conflict, which continued until sunset. The Mexicans were defeated, and lost in killed, wounded and missing nearly 2000 men, while the American loss was 746. Taylor soon after returned to the United States, where he was received with well-deserved honors. General Scott invested Vera Cruz on the 13th of March, 1847, with an army of about 13,000 men, assisted by a powerful squadron under Commodore Connor. On the 18th his arrangements were completed, and he summoned the town and fortress, for the last time, to surrender. Upon the refusal of this demand, a bombardment was opened from his batteries and the fleet, and in nine days Vera Cruz, the strong fortress of San Juan de Ulloa, 5000 prisoners and 500 pieces of artillery were surrendered to the Americans (March 27, 1847). On the 8th of April, Scott's advanced guard, under General Twiggs, was sent forward on the Jalapa road, toward the city of Mexico. He found Santa Anna posted at the mountain pass of Cerro Gordo with more than 12,000 men, and was therefore obliged to await the arrival of General Scott, who soon followed with the main body of the army, having left a very strong garrison in Vera Cruz. The American forces, now numbering 8500 men, attacked the enemy on the 18th of April, and gained a complete victory, with a loss of 431 in killed and wounded, while the Mexican loss in killed and wounded was more than 1000, besides 3000 prisoners. Every important detail of the battle and the subsequent pursuit had been so carefully arranged in the celebrated order which General Scott had issued on the previous day that no time was lost in securing the fruits of this victory. Santa Anna narrowly escaped capture by fleeing upon a mule taken from his carriage. He had had for some time one foot in the grave, and his retreat was so hasty that he left behind him his wooden leg to serve as a trophy of the battle. Before the conflict he had said, "I will die fighting rather than permit the Americans to proudly tread the imperial city of Azteca." Several battles were doubtless saved by the admirable arrangements which General Scott had made for the immediate advance of his army, as the Mexicans were driven so rapidly before him that they were unable to concentrate in force at many places which were well suited for making another stand. On the 22d of April, Perote, the strongest fortress in America, next to San Juan de Ulloa, was taken without a blow, together with 54 cannon and a large quantity of munitions of war. On the 15th of May the Americans entered, without resistance, Puebla, the second city in Mexico, situated only 76 miles from the capital. At this place the army rested for nearly three months while N. P. Trist, an agent sent by the government, attempted to negotiate a peace. His efforts were unsuccessful; and the Mexicans replied to his offers by boasting of their patriotism, valor and strength, while they were abandoning post after post in their retreat toward the capital. On

the 7th of August, General Scott, having been reinforced during this interval, commenced his march on the city of Mexico. As the direct road was barred by very strong fortifications, another route was selected, and a road was made under the direction of skilful engineers. On the 18th of August, Scott had his whole army of 10,000 men at St. Augustine, within 10 miles of Mexico. The city was strongly fortified; Santa Anna had more than 30,000 soldiers at his disposal, thoroughly acquainted with the rocky and mountainons country with which their capital is surrounded. The fortified camp at Contreras, the strongly-garrisoned village of Churubusco, the fort of San Antonio and the redoubtable Santa Anna himself, with a powerful reserve,—such were the obstacles in the path of the victor of Cerro Gordo. At snnrise, on the 20th of August, the camp at Contreras was taken by an assault which lasted only *seventeen minutes*. Before the day was over, San Antonio and Churubusco were also captured, and Santa Anna had fled to "the imperial city of Azteca," again remembering the adage,

"He that fights and runs away
Will live to fight another day."

The Americans lost nearly 1100 killed and wounded during the day, while the Mexicans lost 3000 killed and wonnded, 4000 prisoners and 37 cannon. Their capital was filled with consternation, and Mexico might have been immediately entered in triumph, but Santa Anna asked for a truce, which was granted with the hope that a lasting peace might be negotiated. Mr. Trist, the agent of the United States government, went into the city (Ang. 24) to treat with the Mexican authorities, but returned in twelve days with the intelligence that his propositions had been insolently rejected, and that Santa Anna was violating the truce by strengthening the defences of the capital. Hostilities recommenced with an attack made by 4000 Americans upon 14,000 Mexicans nnder Santa Anna at *El Molinos del Rey* (the King's Mills). The assailants were at first repulsed with great slaughter, but retnrned to the charge, and drove the Mexicans from their position. The American loss in killed and wonnded was 800; that of the Mexicans was never fully ascertained, bnt they left nearly a thousand dead on the field. On the 12th of September the castle of Chapnltepec was bombarded, and on the 13th it was taken by assault. That night Santa Anna, his army and the officers of the Mexican government departed in haste, leaving "the imperial city of Azteca" to take care of itself. On the following day the American flag was raised on the National Palace, and the victorions generals took formal possession of the Mexican empire. Santa Anna made several feeble efforts to retrieve his disasters; bnt in six weeks he had lost everything, and was obliged to live in concealment for several months, when permission was given him by onr government (March, 1848) "to seek an asylum on a foreign soil."

The "army of the West" (2000 strong), under General Kearney, left Fort Leavenworth in June, 1846, marched 900 miles across the plains, and reached Santa Fé on the 18th of August. Kearney took peaceable possession of New Mexico, and was two hundred miles on his way to California, when Kit Carson, the famous scout, met him with the intelligence that Commodore Stockton and Lieut.-Col. Fremont had already nearly completed the conquest of California. He passed rapidly on with 100 men, sending the remainder of his force back to Santa Fé, and arrived in time to share in the honor of the final battle of San Gabriel (Jan. 8, 1847). On the 2d of February a treaty was signed at Guadalupe-Hidalgo (a small village near the city of Mexico), by which the United States paid $15,000,000 for New Mexico and California, boundaries were fixed, and other matters in dispute were adjusted. The bargain with reference to California was made just in time; for in February, 1848, the very month in which the treaty was made, gold was discovered in the Sacramento valley; and hundreds of millions of dollars' worth of the precious metal have since been taken from the apparently inexhaustible stores of this genuine El Dorado. Had the existence of this wealth been known to the Mexicans, it is probable that their patriotic zeal would have been much more ardent when Fremont and Stockton invaded their country. The presidential election of 1848 was a triangular contest. The Whigs, remembering the success with which they had employed in 1840 the watchword "Tippecanoe, and Tyler too!" were attracted by General Taylor's sobriquet of "Old Rough and Ready," and fairly forced upon him the nomination for the presidency, in company with Millard Fillmore as candidate for the vice-presidency. The Democrats nominated General Lewis Cass and General William O. Butler; and Martin Van Buren and Charles Francis Adams were the nominees of the Free-soil Democrats. Taylor and Fillmore received 193 electoral votes and a popular vote of 1,362,024. Cass and Butler received 127 electoral votes and a popular vote of 1,222,419. The Free-soil candidates received no electoral votes. Their popular vote was 291,678. President Taylor's cabinet consisted of John M. Clayton, Secretary of State; William M. Meredith, Secretary of the Treasury; George W. Crawford, Secretary of War; William B. Preston, Secretary of the Navy; Thomas Ewing, Secretary of the Interior (an office recently established); Jacob Collamer, Postmaster-General; Reverdy Johnson, Attorney-General. The first important question which this administration had to deal with was the admission of California into the Union. The discovery of gold soon attracted sufficient population to the Pacific coast to form a State. The would-be State was almost equally divided by the parallel of north latitude (36° 30′) which was the line of the Missouri Compromise [see THE FIFTH DECADE]; and it was new territory, acquired long after that act had been passed. The inhabitants of California adopted a constitution

(Sept. 1, 1849) which contained a clause prohibiting slavery. On this account the pro-slavery party, led by Mr. Calhoun, were opposed to the admission of the State. Those opposed to the *extension* of slavery (a class which contained many who were not abolitionists) were in favor of the immediate admission of California with her constitution unaltered. The question was debated with great warmth; a dissolution of the Union was threatened; but the matter was temporarily settled by a series of compromise measures introduced by Henry Clay, which provided, 1st. That California should be admitted into the Union with its anti-slavery constitution; 2d. That Utah and New Mexico should become territories without any mention of slavery, and that $10,000,000 should be paid to Texas out of the Federal treasury in purchase of her claim to a portion of New Mexico; 3d. That the slave-trade in the District of Columbia should be abolished; 4th. That slaves who escaped to the free States should be arrested and returned to their owners. The last measure produced much dissatisfaction at the North; and "the Fugitive-slave Act," as it was called, caused by its execution, its evasion, and its violation in several instances, serious disturbances and a bitter sectional feeling, which eventually led to the civil war which put an end to the very institution which this law was enacted to defend.

On the 3d of March, 1851, the postage on prepaid letters to all parts of the United States was reduced to three cents; and in the following year postage-stamps and stamped envelopes were ordered. In August, 1851, General Lopez took a party of 480 "filibusters" to Cuba, where he was speedily attacked, defeated, captured and executed, with a number of his followers. In December, 1851, Louis Kossuth, the Hungarian patriot, visited this country. His eloquence, which his thorough acquaintance with the English language enabled him to display to full advantage, gained him admiring hearers wherever he went; but the main object of his visit, viz., to obtain aid for Hungary, was defeated by the change of the French government brought about by Louis Napoleon—a change which rendered the achievement of Hungarian independence impossible. In 1852 difficulties arose between the United States and Great Britain concerning the fisheries on the coast of British America. It had been stipulated by the treaty of 1818 that American fishermen should not cast lines or nets in British bays, except at a distance of three miles or more from the shore. Now the British government claimed the right to draw a line from headland to headland of these bays, and to exclude the Americans from the waters within that line. Armed vessels were sent by both governments to the disputed waters; but the matter was settled in the following year by mutual concessions. In the latter part of the year 1852 France and England modestly requested the United States to enter with them into a treaty whereby they would agree to disclaim "now and for ever all intention to obtain possession of the isl-

and of Cuba," and "to discountenance all attempts to that effect on the part of any power or individual whatever." Edward Everett, who was then Secretary of State, politely replied that the question was an American, not a European one, and not properly within the scope of their interference; and added other remarks, in which the Monroe doctrine was set forth more strongly, if possible, than by Monroe himself, or by J. Q. Adams, the real author of the "doctrine." In the election of 1852 Franklin Pierce, of New Hampshire, and William R. King, of Alabama, the Democratic nominees for the presidency and the vice-presidency, were elected, receiving 254 electoral votes and a popular vote of 1,587,256; while their Whig competitors, General Winfield Scott and William A. Graham, received an electoral vote of 42 and a popular vote of 1,384,577. President Pierce's cabinet consisted of William L. Marcy, Secretary of State; James Guthrie, Secretary of the Treasury; Jefferson Davis, Secretary of War; James C. Dobbin, Secretary of the Navy; Robert McClelland, Secretary of the Interior; James Campbell, Postmaster-General; and Caleb Cushing, Attorney-General. During this administration several important treaties were made, by one of which Arizona was purchased of Mexico; and by another, obtained by "Perry's Expedition," several Japanese ports were thrown open to American commerce. In May, 1854, the Missouri Compromise was repealed, by a vote in the Senate of 37 to 14, and in the House of 113 to 100. In October, 1854, took place the famous "Ostend Conference," at which three American ministers, Messrs. Buchanan, Mason and Soule, recommended their government to *purchase* Cuba, if possible; at the same time asserting the right of the United States to *take* the island by force should Spain refuse to sell. In 1855 a filibustering expedition, under the famous William Walker, invaded Nicaragua, obtained a temporary foothold, and established a government, which was recognized by that of the United States. In the same year a civil war broke out in Kansas between the free-State party and the pro-slavery men. Two constitutions had been adopted and two legislatures elected. The anti-slavery party finally prevailed after a long and tedious struggle.

THE NINTH DECADE.

Presidents, FRANKLIN PIERCE [1853–1857], JAMES BUCHANAN [1857–1861], ABRAHAM LINCOLN [1861–April 15, 1865], ANDREW JOHNSON [April 15, 1865–March 4, 1869].

THREE presidential candidates were before the people in the autumn of 1856. James Buchanan was nominated by the Democrats, J. C. Fremont by the Republicans, and Millard Fillmore by the Native Americans, or Know-Nothings, as they were called. Buchanan received 174 electoral votes and a popular vote of 1,838,169, the same vote being given to John

C. Breckenridge for Vice-President. Fremont received 114 electoral votes and a popular vote of 1,341,264. Fillmore received 8 electoral votes and a popular vote of 874,534. President Buchanan's cabinet consisted of Lewis Cass, Secretary of State; Howell Cobb, Secretary of the Treasury; John B. Floyd, Secretary of War; Isaac Toucey, Secretary of the Navy; Jacob Thompson, Secretary of the Interior; Aaron V. Brown, Postmaster-General; and Jeremiah S. Black, Attorney-General. The agitation of the slavery question continued throughout this administration. The growing strength of the Republican party was shown by the election of their candidate, Nathaniel P. Banks, as speaker of the House of Representatives, after 133 ballots, which occupied the attention of that body from the 3d of December, 1856, to the 2d of February, 1857. The Mormons, who were angry because their territory was not admitted as a State, commenced revolutionary proceedings in the early part of 1857; but the arrival of United States troops in the following year made them glad to accept a pardon for all the seditions and treasons which they had committed. In 1859 John Brown, a man who had suffered severely in the Kansas civil war, attempted, with only twenty-one followers, to excite an insurrection among the slaves of Virginia, and to establish their freedom by force of arms. He seized the arsenal at Harper's Ferry (Oct. 16, 1859), but on the second day the insurrection was quelled by United States marines; and Brown, who was captured, was delivered over to the authorities of Virginia, tried for insurrection and treason, and hanged. This greatly increased the bitterness of feeling between the North and the South, and the presidential election of 1860 was contested with great spirit. Four candidates were before the people. One wing of the Democratic party nominated Stephen A. Douglas, of Illinois; while John C. Breckenridge, of Kentucky, was nominated by the other. The Republicans supported Abraham Lincoln, of Illinois; and John Bell, of Tennessee, was the nominee of a new party calling themselves the "Constitutional Unionists." Lincoln received an electoral vote of 180 and a popular vote of 1,857,610. Douglas received 12 electoral votes and a popular vote of 1,365,976. Breckenridge received an electoral vote of 72 and a popular vote of 847,952; leaving to Bell the remaining 39 electoral votes (those of the "border States"—Virginia, Kentucky and Tennessee), with a popular vote of 590,631. When the result of the election was known, a convention was called in South Carolina to consider the question of secession, which met (Dec. 17, 1860), and passed an ordinance of secession. The example of South Carolina was followed by Mississippi (Jan. 8, 1861); Florida (Jan. 10); Alabama (Jan. 11); Georgia (Jan. 19); Louisiana (Jan. 26); Texas (Feb. 1); Virginia (Apr. 25); Arkansas (May 6); North Carolina (May 20); Tennessee (June 8). The reasons given for this course were "the refusal of fourteen of the States, for years past, to fulfil their constitutional obligations," and "the election of a man to the

high office of President of the United States whose opinions and purposes are hostile to slavery." Kentucky and Missouri were divided, and had representatives in the governments and armies of both sections. On the 4th of February, 1861, a convention met at Montgomery, Alabama, in which all the States which had seceded previous to that date were represented. A constitution was formed and adopted, and the title of "Confederate States of America" was given to the new organization. Jefferson Davis, of Mississippi, was elected President, and Alexander H. Stephens, of Georgia, was elected Vice-President of the confederacy. Hostilities commenced with the bombardment of Fort Sumter (April 12, 1861), which was held for the Federal government by Major Anderson, with 70 men. The fort was several times set on fire, and on the 14th of April the garrison surrendered and marched out with the honors of war. On the following day President Lincoln issued a proclamation calling out 75,000 volunteers for three months, which was speedily followed (May 3) by a call for 64,000 men for the army and 18,000 for the navy, to serve "during the war." The President also declared the ports of the seceded States blockaded (April 19). In the South preparations for war were vigorously carried on. General Robert E. Lee was appointed commander of the Confederate troops in Virginia (May 10), and the Mississippi River was blockaded at Memphis (May 23). A Union force numbering 6000 men was repulsed at Big Bethel, Va. (June 10); and the main body of the Confederates, about 30,000 strong, which was concentrated at Manasses Junction, defeated an equal number of Federal troops, under General McDowell, in the famous battle of Bull Run (July 21). On the following day General George B. McClellan was appointed commander of the army of the Potomac. He had been successful in wresting the western part of Virginia out of the hands of the Confederates, and in the following year (Dec. 31, 1862) that section was admitted into the Union under the name of "West Virginia." When the Federal Congress met (July 5, 1861), the President had asked for 400,000 men and $400,000,000. The result of the battle of Bull Run showed that the war was likely to be protracted, and Congress voted 500,000 men and $500,000,000. The Confederate Congress authorized the enlistment of 400,000 men. During the remainder of this year (1861), however, the military operations were not very decisive, both sides being fully occupied in arming and disciplining troops. The Union force, 1900 strong, commanded by General Stone, which was sent across the Potomac at Ball's Bluff, and left without support, was attacked by a superior force of Confederates and nearly annihilated. On the 7th of November a Union force under General Grant, after capturing the Confederate camp at Belmont, Mo., was finally repulsed with loss. On the same day a naval force under Admiral Du Pont made its way into Port Royal entrance, on the coast of South Carolina, and captured Forts Walker and Beauregard. On the day

after this victory, Captain Wilkes, commanding the United States frigate *San Jacinto*, overhauled the British mail steamer *Trent*, and took from her Messrs. Mason and Slidell, Confederate ambassadors to England and France. This act caused great excitement in Great Britain and in the United States; another war seemed inevitable; but the disavowal of the act by the Federal government and the surrender of the envoys averted the threatened danger.

At the beginning of the year 1862 the entire Union force in the field was about 450,000 men, 200,000 of whom were in the vicinity of Washington, under McClellan. The whole Confederate force was not far from 350,000 men, occupying about half of the States of Kentucky, Missouri and Virginia, and the whole of the remaining Southern States. During the month of January, Kentucky was the sole field of military operations. Colonel Humphrey Marshall was defeated near Prestonburg (Jan. 10) by a Union force under Colonel Garfield, and driven into Virginia, and General Thomas defeated the Confederates under Generals Crittenden and Zollicoffer, in the battle of Mill Spring (Jan. 19). General Grant, assisted by Commodore Foote with his flotilla of gunboats, took Fort Henry, on the Tennessee River (Feb. 6). The greater part of the garrison escaped to Fort Donelson, on the Cumberland River, which General Grant captured, together with 12,000 prisoners and 40 cannon, ten days later. An expedition under General Burnside and Commodore Goldsborough, which sailed from Fortress Monroe (Jan. 12, 1862), captured Roanoke Island (Feb. 8), Newbern, N. C. (March 14), and Beaufort (April 25). On the 9th of March occurred one of the most remarkable naval battles on record. The Confederate iron-clad *Virginia*, formerly the United States frigate *Merrimac*, had made a descent upon the Union fleet, near Fortress Monroe, on the preceding day, and had destroyed the wooden vessels *Cumberland* and *Congress*. During the night the floating battery *Monitor* arrived; and when the *Virginia* returned to the attack, she was beaten off, after an action of five hours, and forced to return to Norfolk. This was the "trial trip" of the *Monitor*, and the result was so satisfactory to the Federal government that a fleet of monitors was built with all possible despatch. On the 8th of March an important battle was finished at Pea Ridge, in the western part of Arkansas, between Union troops under General S. R. Curtis and Confederates under General Earl Van Dorn. The conflict had lasted for three days, and the Union forces were finally victorious. The great activity now displayed at so many different points was owing to an order issued by President Lincoln commanding all the Union armies to advance on the 22d of February, 1862. On the 6th of April, General Grant was defeated and driven back to the Tennessee River, in the battle of Shiloh, losing 2500 prisoners, including General Prentiss. On the following day reinforcements arrived under General Buell; the battle was renewed, and the Confederates were forced to retreat. On the same day

(April 7), Island No. 10, in the Mississippi River, a short distance below its junction with the Ohio, was taken from the Confederates by General Pope and Commodore Foote, who had been acting together, the one with land-forces, the other with a flotilla of gunboats. The prisoners numbered 8000. Fort Pulaski, near Savannah, Ga., was captured, after a bombardment of 30 hours, by Captain (afterward Major-General) Gillmore (April 11), and during the same month Farragut and Porter, with a gunboat and mortar fleet, began (April 24) to bombard Fort St. Philip, on the eastern bank, and Fort Jackson, on the western bank, of the Mississippi, below New Orleans. On the 24th the fleet ran past the forts and fought a terrific battle with a Confederate fleet. On the 26th New Orleans was taken, and it remained from that time in the possession of the Union forces. We have reserved the most important movements, or at least those of the largest army, for the last. The army of the Potomac, having been taken in transports to Fortress Monroe, commenced (April 3d) its march toward Richmond, under the command of General McClellan. The siege of Yorktown consumed a month; and when that place was evacuated (May 4), the Confederates had greatly strengthened the defences of their capital. On the 23d of May, McClellan reached a point within 7 miles of Richmond, but his efficient force was very much diminished, while that of the Confederates was constantly increasing. "Stonewall Jackson" and Ewell had forced General Banks out of the Shenandoah valley, and threatened Washington. Not only the forces intended for McClellan, but militia called from the Northern States, were required for the defence of the Federal capital. McClellan gained (May 31) the battle of Fair Oaks, or Seven Pines; but Jackson now moved rapidly southward to co-operate with Lee. McClellan was obliged to change his base of supplies from the York River to the James. This hazardous movement was accomplished at the expense of a succession of the most desperate battles ever fought upon this continent—viz., those of Oak Grove (June 25), Mechanicsville (June 26), Gaines' Mill (June 27), Savage's Station (June 29), White Oak Swamp (June 30) and Malvern Hill (July 1). Both armies fought with desperate valor, the advantage finally remaining with the Confederates; for though the Union forces reached the James River, the peninsular campaign was a failure so far as its object (the taking of Richmond) was concerned, and the Confederates were so encouraged that they assumed the offensive during the month of August. McClellan was recalled and placed (Sept. 1) in command of all the troops about Washington. Lee pushed across the Potomac into Maryland, and occupied Frederick (Sept. 6) and Hagerstown (Sept. 10), but was defeated at South Mountain (Sept. 14) and at Antietam (Sept. 17), the latter battle lasting from early dawn until twilight. Lee was forced to recross the Potomac. The campaign in Maryland had cost the Confederates 30,000 men; but between the battles of

South Mountain and Antietam Stonewall Jackson had taken Harper's Ferry (Sept. 15), with 11,583 men and an immense quantity of munitions of war. On the 7th of November, McClellan was superseded by General Burnside, who led the army against the Confederates massed at Fredericksburg, Va., and there met (Nov. 13) with a disastrous defeat, losing 12,000 men. During the year 1862, President Lincoln had issued a call for 300,000 volunteers for the war, and on the 9th of August another for 300,000 men for nine months, who were to be drafted unless they volunteered promptly. On the 2d of September was issued the notice of the memorable emancipation proclamation, declaring that all the slaves in the States and portions of States which should be "in rebellion against the United States" on the 1st of January, 1863, should be "thenceforward and for ever free." The proclamation itself was issued on the day just named. This measure gave rise to much excited discussion. On the 25th of January, 1863, General Burnside was relieved, at his own request, and succeeded by General Joseph Hooker. The latter led his army across the Rappahannock (April 28), and six days afterward fought the battle of Chancellorsville, in which, on the 2d of May, the Union troops were disastrously defeated. On the 3d they recovered all that they had lost; but on the 4th they were forced to retire, having lost more than 11,000 men. In the following month, Lee, emboldened by his success, invaded Maryland (June 14), and moved on toward Pennsylvania. The army of the Potomac, the command of which was transferred (June 28) from General Hooker to General George G. Meade, followed on the right flank of the Confederates, and General Lee was forced to concentrate his forces at Gettysburg, Pa., and to give battle (July 1). The struggle was contested for three days with the most desperate courage on both sides, and Lee was finally defeated, with the loss of thirty thousand killed and wounded, 14,000 prisoners and 25,000 stand of small arms. The Federal loss was nearly 23,000 in killed, wounded and missing. The Confederates recrossed the Potomac and retreated slowly through Virginia to a good position on the Rapidan. Meade followed closely but cautiously, and by the middle of August he also was beyond the Rappahannock, and there the armies lay for a long time confronting each other. On the 5th of October, Lee again advanced northward and compelled Meade to fall back upon the line of Bull's Run. After destroying the railroad from Manassas Junction to the Rapidan River, he established a strongly-fortified camp between that stream and Orange Court-House. During these manœuvres, from the 8th to the 23d of October, there was heavy skirmishing. On the 7th of November, 2000 Confederates were captured by Generals Sedgwick and French, and on the 20th the army of the Potomac advanced against Lee; but his position was found to be too strong, and the Federals returned to their previous camps on the Orange and Alexandria Railroad. During

the spring of this year (1863) important events were taking place on the Mississippi. After the fall of Memphis, Vicksburg was the only remaining Confederate stronghold on that river; and several naval and land attacks were made upon this important post, beginning in June, 1862, and extending over a period of more than a year. The first effort to take the place being unsuccessful, an attempt was made to change the course of the Mississippi River by digging a canal, with the design of making Vicksburg an inland town. Various endeavors to reach the rear of the place were made, in one of which General Sherman was repulsed with heavy loss (Dec. 27, 1862). During the following month, with the assistance of Admiral Porter, he captured Arkansas Post, with 5000 prisoners. On the 2d of February, General Grant assumed the command of the army of the Mississippi, which he moved down the west side of the river, while Porter boldly ran by Vicksburg with his fleet and met Farragut coming up. On the 30th of April, Grant recrossed the river at Bruinsburg, and marched inland to the rear of Vicksburg, which place he regularly invested on the 18th of May, after fighting the battles of Port Gibson (May 1), Raymond (May 12), Jackson (May 14), Champion Hills (May 16) and Black River Bridge (May 17). Attempts were made to take the town by assault (May 21 and 22), but the assailants were repulsed with heavy loss, and it was therefore resolved to resort to a regular siege. The approaches and parallels were daily pushed nearer and nearer, the city was exposed to an almost constant bombardment from the army and from the gunboats on the river. The garrison held out as long as possible, in the hope that General Johnston, who was straining every nerve to raise a sufficient army for the purpose, would come to their relief. This hope was vain, as the reinforcements were driven back. Provisions grew scarce; even the flesh of mules began to fail. On the 4th of July, the day after the battle of Gettysburg, General Pemberton surrendered the place with 30,000 prisoners, arms and munitions of war for an army of 60,000 men, together with steamboats, cotton and other property of immense value. During June and July, 1863, a raid was made by General Morgan, a famous Confederate leader, with about 3000 cavalry and six cannon. They crossed the Ohio River into Indiana, and moved rapidly eastward, plundering as they went. Home-troops killed or captured nearly all of this force, and General Morgan, with a remnant of 400 men, surrendered to General Shackleford, in Morgan county, Ohio, on the 26th of July. During this same period, General Rosecrans, by a series of vigorous movements, had driven the Confederates under General Bragg out of Middle Tennessee, and in August the Federals followed them over the Cumberland Mountains, and by a flank movement compelled them to march on in the direction of Georgia. Bragg was afterward reinforced by Longstreet and his corps, from Lee's army, and turned suddenly upon

his pursuer. They fought until night; the battle was renewed on the following day, and the Federals were compelled to fall back to Chattanooga. General Grant, a large portion of whose army had been ordered from Vicksburg to Chattanooga, now superseded Rosecrans, and was not long in assuming the offensive. Lookout Mountain was brilliantly carried (Nov. 24) by Hooker's men, who fought much of the time above the clouds, and were thus hidden from the view of the anxious spectators below. On the 25th the Confederates were driven from Missionary Ridge, and Bragg and his army were retreating toward Georgia. The Federal army had made great progress during the year 1863. They held Missouri, Arkansas, Kentucky, Tennessee, a large portion of Louisiana, Mississippi and Florida, and the Rio Grande frontier of Texas, and had the control of the Mississippi River. Some of these districts were great food-producing regions, which made their loss a serious matter for the Confederates. Early in May, 1863, a draft for 300,000 men was ordered by President Lincoln, in accordance with an act of Congress previously passed (March 3); but as exemption could be purchased for $300, this measure had resulted at the end of the year, in the twelve States in which it had been enforced, in adding 50,000 men to the army and in the accumulating of a fund of $10,518,000, to be used for bounties, etc.

The opening military events of the year 1864 were, on the whole, favorable to the Confederates. On the 10th of March General A. J. Smith left Vicksburg with a large body of troops and went up the Red River, accompanied by the fleet of Admiral Porter. On the 13th he captured Fort de Russey from the Confederates; and on the 16th he entered Alexandria, where he was joined by General Banks with a large force from New Orleans. The fleet and a portion of Smith's army advanced toward Shreveport. At Cane River they met and defeated the Confederates (March 26); but near Mansfield they were drawn into an ambuscade, and were attacked in front and on both flanks by the whole force of the Confederates. The Federals were driven back to Pleasant Hill, where, on the following day, they repulsed another attack, and finally reached the river with the loss of 3000 men and 20 pieces of artillery. Banks now directed Porter, who had gone on toward Shreveport, to return, as he could afford him no support. The fleet started back, annoyed all the way by Confederate batteries and sharpshooters. The water had fallen very low, and the fleet would have been lost had not Lieutenant-Colonel Bailey, of Wisconsin, proposed and superintended the construction of a dam across the river, by means of which the fleet was extricated (May 11). The Federal armies met with disasters elsewhere. On the 5th of February General Seymour left Port Royal for a campaign in Florida; but on the 20th he was met by a superior force at Olustee, 50 miles south-west of Jacksonville, and defeated with the loss of 1200 killed, wounded and missing. On the 3d of February General Sher-

man started from Vicksburg and penetrated the State of Mississippi as far east as Meridian, where he expected a cavalry force from Memphis to join him; but this force having been driven back, General Sherman was forced to retrace his steps to Vicksburg. On the 12th of April Fort Pillow, on the Mississippi, 70 miles above Memphis, was taken by the Confederates; and a few days later they captured Fort Williams, near Plymouth, N. C., together with 1600 men. These and other successes on the part of the Confederates showed the necessity of abandoning the desultory mode of warfare which had caused the loss of so many lives upon both sides, yet had not, apparently, brought about the beginning of the end. General Grant was accordingly promoted to the rank of lieutenant-general (Mar. 3, 1864), and given the powers of commander-in-chief (Mar. 14). Turning over the army of 100,000 men at Chattanooga to General Sherman, and making his headquarters in the field, with the army of the Potomac, Grant ordered a simultaneous advance to be made by both bodies early in May—by the former upon Atlanta, Ga., and by the latter against Richmond. Sherman's men were in motion on the 7th of May. The Confederate general Johnston, with 60,000 men, was posted at Dalton, which place he was forced from by a flank movement. He fell back to Resaca, where a desperate battle was fought (May 13, 14), in which he was defeated. The Confederates continued their retreat, occasionally stopping to give battle; but they were finally (July 10) driven into their strong fortifications before Atlanta. Johnston was severely censured by the Confederates for retreating, and was superseded by General Hood, who made three furious attacks on Sherman's army before Atlanta (July 20, 22, 28), but was defeated in all with very heavy loss. After a siege of nearly two months, Sherman at last (Sept. 2) gained possession of the city. In the mean time, the army of the Potomac was not idle, but broke camp (May 3) under the immediate command of General Meade, crossed the Rapidan, and soon reached "the Wilderness." Here the advance was met on the 5th, and a battle began which raged furiously all day. At sunrise on the 6th the conflict was renewed, and it did not close until darkness set in. On the 7th Lee fell back to Spottsylvania, where six days of continuous fighting ensued, the advantage remaining with the Federals. Lee again fell back; and by flanking and fighting he was forced back early in June to a point within a few miles of Richmond. Finding the defences upon the north and east of Richmond too strong to be at that time successfully attacked, General Grant abandoned his northern line of advance, and with little opposition, between the 12th and 15th of June, removed his army to the south side of the James River. He did this with the view of taking Petersburg, 22 miles south of Richmond, and thus necessitating the evacuation of the latter city. During this campaign of 43 days more than 100,000 men upon each side, each receiving frequent reinforcements, had been engaged in almost one continual battle, resulting

in heavy but nearly equal losses to both. Lee at once threw a large portion of his army into the defences of Petersburg, the siege of which was vigorously pushed. On the 30th of July a mine was exploded under one of the Confederate forts; but the assault that followed through the breach thus made was repulsed, with a loss to the Federal army of 5000 men. On the 18th of August the Federals seized and held the Weldon Railroad, despite the most desperate efforts of the Confederates to recover it. Nothing further of a decisive nature occurred before Petersburg during the remainder of the year. On the 15th of November Sherman left Atlanta and started to Savannah, in the neighborhood of which city he arrived on the 10th of December. On the 13th Fort McAllister was carried by assault, and on the 20th Savannah was evacuated by the Confederates and occupied by the Federal troops. While Sherman was thus engaged, the Confederate general Hood invaded Tennessee and drove back the Federal forces under General Thomas from point to point; but was finally defeated near Nashville (Dec. 15), with a loss of over 13,000 prisoners and 72 pieces of artillery. During the year 1864, 1,200,000 men were called for by President Lincoln. The first call (Feb. 1) was for 500,000 men; but it was interpreted to mean the deficiency under the previous call and 200,000 additional men. The second (March 14) was for 200,000 men; the third (July 18), for 500,000 volunteers; the fourth (Dec. 20), for 300,000.

At the presidential election of 1864 two candidates were presented—Abraham Lincoln by the Republicans, for re-election, and General McClellan by the Democrats. Twenty-five States took part in this election, and the electoral vote cast was 233, of which Lincoln received 212, and McClellan 21, being the votes of New Jersey, Delaware and Kentucky. The popular vote of Lincoln and Johnson was 2,223,035, and that of McClellan and Pendleton was 1,811,714.

After Sherman had allowed his army a short rest at Savannah, he again took the field (Feb. 1, 1865). He marched through South Carolina, took possession of Columbia (Feb. 17), and on the following day the force under Gillmore, which had been besieging Charleston, entered that city, which had been under bombardment 542 days. Sherman pushed on toward North Carolina; while Schofield, from Newbern, and Terry, from Wilmington, were co-operating with him. After some fighting, the three armies met at Goldsborough (Mar. 22); while General J. E. Johnston, with the main army of the Confederates in that region, was held at bay at Raleigh. At last, on the 24th of March, General Grant issued orders for a general movement of the armies operating against Richmond, to be made on the 29th. On the 25th, however, Lee made a desperate effort to break through the Federal lines on the Appomattox River, and Fort Steedman was taken by the Confederates, but was soon recaptured. Sheridan, after a partial repulse on the 31st of March, the next day defeated the Confederates at

Big Five Forks, and took 6000 prisoners. Immediately afterward (Apr. 2) Grant made an attack along the whole line in front of Petersburg, and was everywhere successful. Petersburg was evacuated that evening; Richmond also was abandoned, and Lee retreated toward Lynchburg, but was intercepted by Sheridan, and finally (Apr. 9) surrendered his army, now reduced to 25,000 men. Johnston surrendered his army of 30,000 men on the 26th of April. Between these two events, on the evening of the 14th of April, President Lincoln was shot by John Wilkes Booth, and died at 22 minutes past 7 the following morning. In less than six hours after his death Andrew Johnson, the Vice-President, had taken the oath of office as President of the United States, and the government went steadily on in its course. The war, which for four years had been consuming millions of treasure and hundreds of thousands of human lives, was now at an end; but there were difficult problems to solve before the question of "Reconstruction" could be settled. Early in 1865 Congress passed a resolution proposing an amendment to the Constitution abolishing slavery throughout the United States. Three-fourths of the States having ratified this amendment, it was announced on the 18th of December, 1865, that it had become a part of the Constitution; and slavery in the United States ceased to exist. In June, 1866, great excitement was caused by the invasion of Canada by bodies of Fenians, an Irish organization, formed for the purpose of wresting Ireland from the British government and establishing the independence of "the Emerald Isle." President Johnson issued a proclamation cautioning all against the enterprise as a violation of neutrality; and the vigorous measures of General Meade, who was sent to the frontier, put a stop to the movement.

THE TENTH DECADE [1866–1876].*

Presidents, ANDREW JOHNSON [April 15, 1865–March 4, 1869], ULYSSES S. GRANT [1869—].

DURING 1866 and 1867 the country was deeply agitated by the question of Reconstruction—that is, of readmitting the seceded States to their former position in the Union. The difficulty was greatly increased by a difference of opinion between the President and Congress. The President recognized loyal governments as existing in Virginia, Tennessee, Arkansas and Louisiana. He appointed provisional governors for the other seceded States,

* For obvious reasons, the history of this decade will be incomplete, as this portion of the work is devoted to history and not to prophecy; and we do not possess the peculiar ability of certain journalists who, knowing that a banquet was going to take place to which they could not obtain admission, published a full report, with characteristic speeches by prominent guests, only to learn on the following day that the banquet had been postponed, and to see their *ruse de guerre* thoroughly exposed.

with the power to call conventions for the purpose of establishing permanent governments; and his policy was to recognize such governments, and to restore the States to their former rights as soon as they should repeal their ordinances of secession, repudiate their Confederate debt, and ratify the Thirteenth Amendment, which Congress had proposed for the abolition of slavery. Most of the States in question complied with these conditions; but Congress would not recognize them as reconstructed without further guarantees. A Fourteenth Amendment to the Constitution was proposed, for which the reader is referred to that instrument [see GOVERNMENT AND LAWS], and the ratification of both the Thirteenth and Fourteenth Amendments was required by Congress of States desiring readmission. Tennessee, having promptly complied with this last requirement, was in July, 1866, restored to her position in the Union. Two years later, after a long and bitter struggle between the President and Congress on this and other questions, Arkansas, Alabama, Florida, North and South Carolina, Georgia and Louisiana were also readmitted. Their senators and representatives had been absent from their seats in Congress for more than seven years. The difficulties between the President and Congress were aggravated by the attempt of the former to remove Mr. Stanton, the Secretary of War, from his position. The Tenure-of-office Act, passed shortly before, made the consent of the Senate necessary to such removals (Feb., 1868). On the 24th of February the House of Representatives passed a resolution to impeach the President "of high crimes and misdemeanors," on account of his violation of the Tenure-of-office Act.* He was tried by the Senate, in accordance with the provision made by the Constitution for such cases. A vote was taken on three of the articles of impeachment; and as two-thirds of the Senate had not pronounced the President guilty, he was acquitted on those articles, and the impeachment trial came to an end. In the summer of 1868 an embassy from China came to the United States, under the charge of Mr. Burlingame, who had been United States minister to China. A treaty was negotiated at Washington and ratified by the United States Senate (July 16), which guaranteed liberty of conscience to citizens of the United States in China, and permission to attend all public educational institutions, without being subjected to any political or religious test, to the Chinese residing in the United States.

At the Presidential election of 1868 the Republicans nominated for the presidency General U. S. Grant, of Illinois, and for the vice-presidency Schuyler Colfax, of Indiana. Horatio Seymour, of New York, was nomi-

*There is a great deal of confusion with reference to the meaning of the word "impeach," many persons thinking that it carries with it the idea of *conviction* of the crimes charged. So far as President Johnson's case is concerned, this definition will suffice: "To cite before a tribunal for judgment of official misconduct; as, to *impeach* a judge." President Johnson was *impeached*, but was acquitted of the charges.

nated by the Democrats for the presidency, and General Francis P. Blair, Jr., of Missouri, for the vice-presidency. The Republican candidates were successful, and General Grant was inaugurated on the 4th of March, 1869. On the 25th of the previous month the Fifteenth Amendment to the Constitution was proposed by a joint resolution of Congress; and the ratification of this amendment was afterward (April 10) made one of the conditions for the readmission of the three States which were still unrepresented in Congress. Virginia ratified the amendment in 1869, Mississippi and Texas in 1870, and in the latter year the States named were restored to their position in the Union. The census of 1870 showed an aggregate population of 38,558,371, an increase during ten years of 22½ per cent. In 1871 the governments of the United States and of Great Britain appointed a joint high commission, which met at Washington and concluded a treaty (May 8, 1871), which was ratified by the Senate (May 24). This treaty (known as "the Treaty of Washington") provided that a tribunal of arbitration should be constituted, consisting of one member from Great Britain, one from the United States and three from foreign countries (Switzerland, Italy and Brazil). This tribunal was to decide upon the amount of the "Alabama Claims"—*i.e.*, the claims of the United States against the British government for damages on account of the injury done to the American commerce by certain Confederate cruisers which were fitted out in British ports. The first formal meeting of the "Geneva Tribunal of Arbitration" was held on the 15th of December, 1871. The "printed cases" of the respective governments were presented, another formal meeting was held on the following day, and the tribunal then adjourned to meet at Geneva on the 15th of June, 1872. At this date its sessions were renewed, and at the thirty-second conference, held on the 14th of September, a decision was announced, which states that "The tribunal, by a majority of four voices to one, awards to the United States a sum of $15,500,000 in gold, as the indemnity to be paid by Great Britain to the United States for the satisfaction of all the claims referred to the consideration of the tribunal." The dissenting voice was, of course, that of the British member of the tribunal, Sir Alexander Cockburn, who verbally "stated the grounds of his own decision, which the tribunal ordered to be recorded." Sir Alexander "recorded" his reasons by publishing them in the *London Gazette* for Sept. 24, 1872, and he "annexed" them to the official protocol by sending a copy of the paper containing them to the agent of the United States. Such is the statement which we have seen appended to a report of the proceedings of this conference in the *Annual Cyclopædia* for 1872. It is only fair, however, to give the account of Mr. Cushing, who certainly cannot be accused of an exhibition of favoritism when speaking of the British arbitrator. "He withheld his argument from the tribunal at the proper time for its presentation as the 'reasons' of an *arbi-*

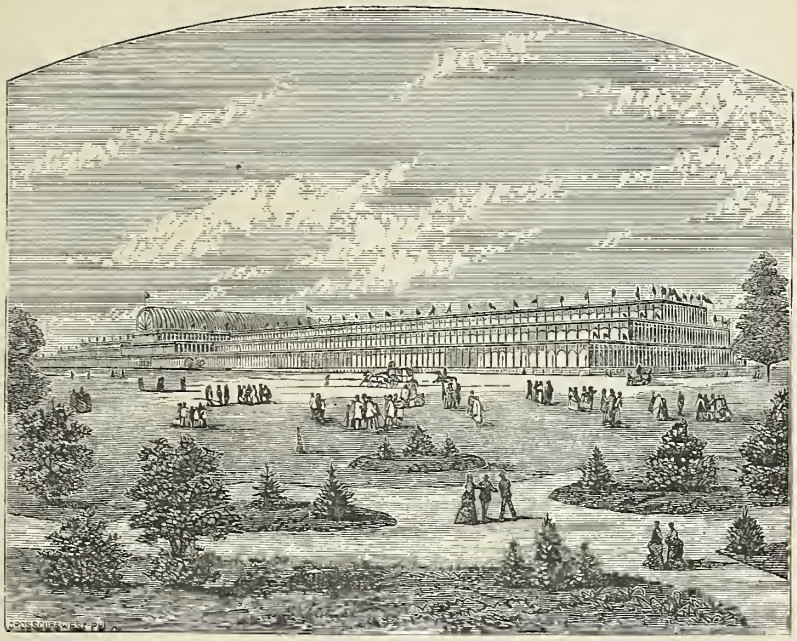
trator. At the last moment, without its being read by the tribunal or printed for the information of agents or counsel, as a resolution of the tribunal, adopted on his own motion, required, he presents this argument as his *Reasons for Dissenting from the Decision of the Tribunal of Arbitration.*" The publication of *all* of the *Reasons*, etc., could not have been made in the *London Gazette*, if, as Mr. Cushing says, they filled 296 pages of folio letter-press, 180 of which were devoted to opinions on the various vessels, and the remaining 116 "partly to the discussion of the special questions," says Mr. Cushing, with great courtesy, "in all of which he is inordinately prolix, and partly" (here Mr. Cushing's courtesy is overpowering) "to a general outpouring of all the bile which had been accumulating on his stomach during the progress of the arbitration."

In the latter part of 1872 and in the beginning of 1873 was fought the famous "Modoc War." The Modoc Indians took possession of the Lava Beds, near Fort Klamath, in Oregon. Under their chief, Captain Jack, they kept concealed in the caverns which abound in that locality, and it was exceedingly difficult to force them into action. They were armed with rifles equal, if not superior, to those of our soldiers. They were holding positions which gave them a decided advantage over any attacking party. They were commanded, moreover, by a skilful and unscrupulous leader, and their flexible system of tactics enabled them to take the fullest advantage of their thorough acquaintance with "the seat of the war," while the routine methods of attack and defence which are preserved in the regular army left our soldiers to a certain extent at the mercy of their wary foes. Nor was there perfect freedom on the part of some of the officers from the careless spirit displayed by Braddock more than a century before, if, as we have been informed by a soldier who passed through the whole campaign, a detachment of twenty or thirty men was permitted to halt for dinner without having a single sentry posted; whereupon the savages stole upon their unwary foes and killed nearly every man of them. After a number of almost fruitless skirmishes, General Canby, who commanded the Department of the Columbia, together with the peace-commissioners, Thomas and Meacham, attempted negotiations for a peace, were met by Captain Jack and several of his warriors under a flag of truce, and were treacherously fired upon (Apr. 11). Gen. Canby and Mr. Thomas were killed, and Mr. Meacham was wounded. Col. Jefferson C. Davis was immediately assigned to the command of the department, and by the 1st of June his vigorous measures had resulted in the capture of the whole tribe, including Captain Jack, Sconchin, Hooker Jim, Black Jim, Bogus Charley, Boston Charley and Steamboat Frank. The seven just named were tried by a military court-martial, and found guilty of murder. Captain Jack, Sconchin and Black Jim were hanged (Oct. 3), but the others were spared and transported to Dakota with the rest of the tribe.

On the 31st of October, 1873, the *Virginius*, a ship sailing under the American flag, was captured on the high seas, near Jamaica, by the Spanish steamer *Tornado*. It was alleged that the captured vessel was laden with men and arms for the Cuban insurgent army. She had 170 men on board, including the crew, and these were all held as prisoners. On the morning of the 4th of November four prominent Cubans who were among the passengers were shot. On the 7th and 8th, Captain Fry was shot, together with 36 of the crew, and a few days later seventeen British subjects were disposed of in the same manner. Further executions were stopped by orders from Madrid. Prompt action was taken by the United States government. War with Spain seemed at one time inevitable, but a peaceful settlement was brought about by negotiation. Spain stipulated "to restore forthwith the vessel referred to, and the survivors of her passengers and crew, and on the 25th day of December (1873) to salute the flag of the United States;" but the salute was to be dispensed with if before the time specified Spain should prove that the Virginius was not entitled at the time of her capture to carry the American flag. This was not a very difficult task; the Spanish minister easily obtained the required evidence within the stipulated time; so the Virginius was delivered up without the salute, on the 16th of December. She sailed for New York, but sank before reaching her destination. It was, however, a great satisfaction to the country that when she sank she was under the American flag.

On the 5th of September, 1874, the centennial anniversary of the meeting of the FIRST CONTINENTAL CONGRESS [see HISTORICAL SKETCH, p. 99] was celebrated by a meeting held in Carpenters' Hall, Philadelphia, in the very building and room where that historic body had assembled. On the 19th of April, 1875, the centennial of the opening scenes of the Revolution was celebrated at Lexington and Concord. At Concord French's statue of "The Minute-Man" was unveiled. An address was delivered by Ralph Waldo Emerson and an oration by George William Curtis, while the poem was read by James Russell Lowell. At Lexington the oration was delivered by Richard H. Dana, Jun., and the poem was read by John G. Whittier. On the 17th of June the celebration of the centennial of the battle of Bunker Hill took place at Boston. The leading feature was the enthusiastic reception of the Southern soldiers who came to participate in the ceremonies.

Here, then, our record closes, with the expression of the hope that the greater Centennial, now near at hand, may be the occasion of still kinder and more brotherly feelings between those who in the past "contending have stood apart," until in fact as well as in name, in heart and sentiment as well as in outward form of government, this country may deserve the name of "The UNITED States of America."



Engraved expressly for Burley's United States Centennial Gazetteer and Guide.

THE CRYSTAL PALACE, LONDON, 1851.

THE "Great Exhibition of the Industry of All Nations," which was given in the building above represented, was the first of all international exhibitions. It was fancifully resolved that the length of the building should indicate its date. It therefore extended 1851 feet, with a breadth of 450 feet and a height of 66 feet. It was situated in Hyde Park, and covered an area of 13 acres. It was constructed of iron and glass, and the contractors agreed to have it completed within four months. The glass-maker was to be ready within that time with 900,000 square feet of glass, weighing 400 tons and composed of the largest panes of sheet-glass which had ever been made, each being 49 inches long. The iron-master was to furnish 3300 columns, varying from 14½ to 20 feet in length, 34 miles of guttering-tube to connect every individual column under ground, 2224 girders and 1128 bearers for supporting galleries. The carpenter was to provide 205 miles of sash-bar, flooring for an area of more than 3,300,000 square feet (one account says 33,000,000 *cubic feet!*), besides a vast amount of wooden walling, louvre-work and partition. These extraordinary engagements were interfered with by no important accident, and all went on with admirable regularity toward completion. Sir Joseph Paxton was the architect. A royal commission had the management of

the whole affair, and a guarantee-fund was subscribed, the queen heading the list with £1000.

The exhibition was opened by the queen on the 1st of May, 1851, was open 144 days, and was closed October 11. The number of exhibitors is variously stated, the lowest figures given being 13,937, and the highest 17,000. The entire number of visitors was 6,201,856, averaging 43,068 per day. The largest attendance was on Tuesday, the 7th of October, when 109,915 persons were admitted. Between eleven and twelve o'clock on that day 28,853 persons entered the building. Pecuniarily, this exhibition was a decided success. The gross receipts were £505,107 5s. 7d., while the expenses were £330,000, so that there was no call on those who had subscribed to the guarantee-fund. The surplus was expended in purchasing a site for a National Gallery.

Only 600 articles were sent to this exhibition from the United States, yet the Americans carried off five grand-council medals and ninety-five prize medals. One article (a reaper), exhibited by a citizen of the United States, was considered by the *London Times* "so important that it would repay England if the exhibition had done nothing else than make that invention known."

The closing scene of the exhibition was very impressive. At five o'clock P. M. on the 11th of October, Mr. Belshaw, one of the managers, appeared at the west corner of the transept gallery, on the north side, bearing in his hand a large red flag, which he displayed just as the clock struck. Instantly all the organs in the building sent forth the notes of the well-known national anthem, "God save the Queen." These were continued for several minutes; then ensued a silence to be broken by a tremendous rolling sound like that of thunder, caused by thousands of feet stamping their loyalty (or their courtesy) upon the boarded floors. This demonstration caused every portion of the edifice to tremble, and as it swept from west to east many an eye was raised with anxiety to the girders and pillars; and now the time had arrived for the death-knell of the exhibition to be rung out. It came, and a perfect storm of bell-peals broke over the building. Immediately before this closing signal some one hung out from the gallery of the transept the following lines—a well-selected epilogue from Shakespeare's *Tempest:*

"Our revels now are ended. These our actors,
As I foretold you, were all spirits, and
Are melted into air, into thin air;
And, like the baseless fabric of this vision,
The cloud-capped towers, the gorgeous palaces,
The solemn temples, the great globe itself,
Yea, all which it inherit, shall dissolve,
And, like this insubstantial pageant faded,
Leave not a rack behind."

PHYSICAL GEOGRAPHY, RESOURCES AND PROSPECTS AND TOPOGRAPHY OF THE UNITED STATES.

GENERAL DESCRIPTION.

THE United States of America occupy the central portion of North America. They extend from the Atlantic Ocean on the east to the Pacific on the west, from the chain of great lakes in the north to the Gulf of Mexico on the south. The area of the territory thus bounded is 3,026,494 square miles. In addition to this they possess the Territory of Alaska, purchased of the Russian government, and formerly known as Russian America, with an area of 577,390 square miles. This brings the total area of the land-surface up to 3,603,884 square miles.

As Alaska is detached, we shall omit it for the present, and confine our remarks to the main body of the territory contained within the limits above mentioned. The greatest length of this region is 2650 miles, and its greatest breadth 1600 miles. It possesses a geographical position eminently fitted for the growth and rapid development of a great and powerful people. It is happily situated between the extremes of heat and cold, its flora is abundant and varied, and its climate is such as conduces to physical and intellectual vigor. Its eastern coast, washed by the Atlantic, is filled with numerous bays and roadsteads, which present every facility for commercial intercourse with Europe; while its western shores, bounded by the Pacific, open their harbors and inlets to the rich traffic of Asia and Oceanica. The extent of the coast-line has been estimated by geographers at figures ranging from 6200 miles up to 12,000 miles; but Professor Brocklesby, by counting in many of the smaller bays, obtains the following figures, which are much more accurate: "The length of the eastern coast-line is 7000 miles, that of the southern 3400 miles, while that of the Pacific is 3700, giving a total length of 14,100 miles." The principal branches of the sea extending into the land are the Chesapeake, Delaware and Massachusetts Bays and Albemarle and Pamlico Sounds on the Atlantic coast, and the Bay of San Francisco on the Pacific coast. The principal bodies of land projecting into the sea are the peninsulas of Florida on the south-east and Cape Cod on the east, both extending into the Atlantic Ocean. Numerous islands are scattered along the various coasts of the United States, nearly all of which give evidence, both by their

geological structure and their position, that they were once a part of the main land, and have been separated from it by a convulsion of nature or by the action of the waters of rivers and of the ocean. The islands of the Atlantic coast, north of Cape Cod, are mostly high and rocky, being of granite formation. Those south of Cape Cod on the same coast are generally low and sandy. Long Island, east of New York, is the largest, and contains an area of 1682 square miles. On the Pacific coast the principal islands are the Santa Barbara Islands, which are barren and rocky, but contain several good harbors.

The mountain-chains of the United States are the Alleghany or Appalachian systems in the east, and the Rocky Mountain and Pacific systems in the west. That last named is also called the California system, and is sometimes, but incorrectly, considered a part of the Rocky Mountain system. The Alleghany Mountains extend from the St. Lawrence through Western New England, the Middle States and the Southern States to Alabama, in a line nearly parallel with the Atlantic coast. In some parts of its extent this system consists of a single chain, but it is generally composed of several parallel ranges, with valleys between. The White Mountains of New Hampshire, noted for their grand and beautiful scenery, the Green Mountains of Vermont and the Highlands of Maine, are also portions of this range. The Alleghanies proper are about 1300 miles long, with an average width of about 70 miles. North of the 40th parallel of latitude they are known as the "Blue Mountains," and south of that parallel as the "Blue Ridge." Mount Mitchell, in North Carolina, 6732 feet high, was long thought to be the highest peak of the range, but it is now known that that pre-eminence belongs to Mount Clingman, in the same State, which rises to the height of 6941 feet. The remaining principal mountains of this chain and its spurs and outlines are, with their respective heights, in the White Mountains, Mount Washington, 6234 feet, and Mount Adams, 5960 feet; in the Adirondacks, Mount Marcy, 5402 feet; and in the Maine Highlands, Mount Katahdin, 5385 feet.

The Rocky Mountain system is a part of the great American chain which extends from the Arctic Ocean to the most southern point of South America. The main chain of this system extends in a southerly direction entirely across the United States, forming the water-shed between the Atlantic and Pacific Oceans. From the boundary of British America to the 38th parallel of latitude this chain is known as the Rocky Mountains, and thence to the southern boundary of the United States it is called the Sierra Madre, a Spanish name signifying "Mother Range." A spur called the "Black Hills" branches off at the 40th parallel, and extends northeast nearly to the Missouri River. An expedition under the command of General Custer penetrated this region during the months of July and August, 1874, and it was reported that large quantities of gold were then

discovered upon one of the Indian reservations, but the truth of this report was denied by Professor Winchell, the chief geologist of the party. The principal peaks of the Rocky Mountains, with their respective heights, are Fremont's Peak, 13,750 feet; Long's Peak, 14,270 feet, and Pike's Peak, 14,147 feet.

The California or Pacific system consists of the Coast Mountains, the Sierra Nevada (Spanish for "Snowy Range," the word "Nevada" meaning literally "white as snow") and the Cascade Range. The Coast Mountains extend along the Pacific coast from the southern boundary of California to Vancouver's Island. They are covered with vegetation to their summits, but the loftier heights of the Cascade Range and Sierra Nevada are barren and inaccessible, many of the peaks being perpetually covered with snow. The Sierra Nevada branches off from the Coast Mountains at the 35th parallel of latitude, and extends in a northerly direction to about the 43d parallel, where it is merged into the Cascade Range, which is the loftiest chain of mountains in the United States. The principal peaks of the Pacific system are, with their respective heights, Mount St. Elias, in Alaska, 17,900 feet; Mount Fairweather, also in Alaska, 14,700 feet; and south of Vancouver's Island, Mount Hood, 14,000 feet; Mount Shasta, 14,000 feet, and Mount St. Helens, 13,300 feet. Several of these are volcanoes, and Mount Hood, in Oregon, and Mount St. Helens, in Washington, have both been seen in a state of eruption.

The great lakes, Superior, Michigan, Huron, Erie and Ontario, comprising together an area of 92,000 square miles, contain most of the lake waters in the United States. The boundary-line between Canada and the United States passes through the middle of all except Lake Michigan, which lies entirely within the territory of the latter. The area of Lake Superior is 31,500 square miles, its length is 480 miles, and its average depth 1000 feet. The area of Lake Huron is 23,100 square miles, its length is 252 miles, and its average depth 1000 feet. The area of Lake Michigan is 23,150 square miles, its length is 320 miles, and its average depth 1000 feet. By accurate observations it has been ascertained that this lake has a lunar tidal wave of about three inches. The area of Lake Erie is 7800 square miles, its length 250 miles, and its average depth 120 feet. The area of Lake Ontario is 6900 square miles, its length is 190 miles, and its average depth 500 feet. The value of these lakes to the commerce of the United States can scarcely be over-estimated, as they form, in connection with the St. Lawrence River, a natural outlet for one of the richest grain-producing countries in the world. A vessel of six hundred tons burden can be loaded with grain at Chicago and taken to Liverpool, getting around Niagara Falls by the use of the Welland Canal.

In describing in a general way the surface of the United States, all geographers have freely used the principle of hydrodynamics, upon which

rests the assertiou that "water will not rnn up hill." In other words, they have divided the country iuto regions answering to the great river systems, considering as one division all the country draiued by any one system. They have not, however, arrived at the same results, but for our purpose the following divisions will suffice: 1st. The St. Lawrence Basin, includiug the country drained by rivers flowing into the St. Lawrence, or into the chain of great lakes of which that river is the outlet. 2d. The Atlantic Slope, drained by rivers flowing into the Atlautic Ocean, or into the Gnlf of Mexico east of the Mississippi. 3d. The Mississippi Valley, drained by the Mississippi aud its tribntaries. 4th. The Texas Slope, drained by rivers flowing into the Gulf of Mexico west of the Mississippi. 5th. The Pacific Slope, the rivers of which flow into the Pacific Ocean. 6th. The Great Iuland Basin, in which the rivers are lost in the sand or by evaporatiou, or flow into some lake which has no outlet. 7th. The basin of the Red River of the North, including a small tract of about 20,000 square miles, the waters of which make their way to Hudson's Bay through the river above mentioned, Lake Winnipeg and Nelson's River. The boundary which separates one basin or slope from another is called the water-shed, because the waters on differeut sides of that line go in different directions. Sometimes this cousists of a lofty chain of mountains, but more often it is a less elevated ridge. A mythical account has been pnblished of a house so accurately placed upou the line between the Mississippi Valley and the Atlautic Slope that the water from one side of the roof ran off to the Atlantic, while that from the other side made its way to the Mississippi.

The St. Lawrence Basiu embraces a part of Vermont, New York, Pennsylvania, Ohio, Indiana, Illinois, Wisconsin and Minnesota, and all of Michigan. The entire region is a well-watered, fertile plain, varying in elevation above the level of the sea from 300 to 1500 feet. The rivers of this system withiu the Uuited States are insignificant. The Atlantic Slope embraces all the New Englaud States except Vermont, all of New Jersey, Delaware, the District of Columbia, South Carolina and Florida, aud a part of New York, Peunsylvauia, Virgiuia, West Virginia, Maryland, North Carolina, Georgia, Alabama and Mississippi. It consists of a seaboard plain and au upper belt, which constitutes the true slope. Its rivers generally flow through a mountainous or hilly country, and are obstrncted by rapids not far from the sea. On this account they are not nsnally navigable for any great distance, but large vessels can ascend the Hudson River to Hudson, the Delaware to Philadelphia, and the Potomac to Washington. The passage of these rivers throngh mountaiu-gorges and over steep descents is often marked by the most striking scenes of natural beauty, and the water-power furnished by their rapids and falls is immeuse, giving rise to large manufacturing cities. The soil of the Atlantic Slope

is varied in its character. In the northern portion, which has been longest under cultivation, it has been so thoroughly worked as to require the use of fertilizers to a much greater extent than the fresh soil of the Western prairies, but the nearness to large city markets and the great wealth of this section of country amply compensate for the requisite outlay. South of the Roanoke the plain near the coast abounds in swamps, but there are also extended sandy tracts covered with pine forests, and a large extent of rich alluvial soil. The upper belt or true slope is a well-watered, beautiful and fertile section—one of the richest districts of the United States. The Mississippi Valley embraces portions of New York, Pennsylvania, Maryland, Virginia, North Carolina, Georgia, Alabama, Mississippi, Louisiana, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Dakota, Montana, Wyoming, Colorado, New Mexico and Texas, and all of Kentucky, Tennessee, Arkansas, Missouri, Iowa, Nebraska, Kansas and the Indian Territory. It covers more than 1,300,000 square miles, more than one-third of the entire area of the United States, including Alaska, and is for the most part a region of unrivalled fertility. That portion which is east of the Mississippi River has a very gradual ascent to the base of the Alleghany Mountains, the average elevation being about 500 feet. This is a magnificent, undulating country, well watered, and blessed with a rich soil and a favorable climate. Formerly it was almost covered with dense forests, but the woods have now to a great extent disappeared, to give place to crops adapted to its varying climatic conditions. West of the Mississippi the character of the surface changes, and it spreads out into slightly-rolling or perfectly-level prairies, covered with long grass, with scarcely a tree or shrub except on the banks of streams. From the Mississippi to the Rocky Mountains the land has a gradual ascent of about six feet to the mile.

The principal rivers of this valley are the Mississippi, the Missouri and the Ohio. The source of the Mississippi River is Itasca Lake, in Minnesota, which is not more than fifteen miles from Elbow Lake, the source of the Red River of the North. Its length is 2900 miles, and it is navigable for steamboats from the Gulf of Mexico to the Falls of St. Anthony, a distance of 2200 miles. The uniformity of its width is remarkable, as it is about half a mile wide at New Orleans, and does not materially vary from that width, except at the bends, for more than 2000 miles. Even when the Missouri, with a stream more than half a mile wide, joins it, the river below is not so broad as either one above. It contains many islands, which have been numbered below the mouth of the Ohio, but as many have been washed away, while others are continually forming, the numbers are now very irregular. The Missouri River is really the main stream, as it is somewhat larger at the point of junction, and the combined stream receives from it its most distinguishing characteristics. It rises in the

Rocky Mountains, and the springs which form its source are not more than a mile from the head-waters of the Columbia. Its waters are turbid and muddy, while those of the Mississippi above the junction of the rivers are comparatively clear; hence the name, Missouri, which means "Smoky River," or, by another interpretation, "Mud River." Its length to the junction is 3096 miles, more than twice that of the Upper Mississippi to the same point, and this gives the Missouri another very strong claim to be considered the parent stream. It is navigable for more than 2500 miles, and when this distance is added to the length of the lower Mississippi (1410 miles) the sum-total shows a continuous navigable river nearly 4000 miles long. Its entire length, taken in connection with the same addition, is 4506 miles, making the longest river in the world. We have given so much space to these details in order to explain the various calculations of the length of the Mississippi. As that name has been given to, and clings to, the lower stream, some geographers, owing to their anxiety to give this country proper credit for the possession of the mightiest of rivers, have stated the combined length of the Missouri and the lower part of the Mississippi in connection with the name of the latter stream. Their figures then vary from 4100 miles to the number which we have given. Others have stated, in connection with the same name, the length of the Mississippi proper, making it 2800 or 2900 miles, hence a confusion has arisen with reference to this matter in the minds of many people, of whom it is our hope that some, at least, may see and be benefited by this explanation. The Ohio River is formed in the western part of Pennsylvania, at Pittsburg, by the junction of the Monongahela and Alleghany Rivers. By the latter the drainage-valley of the Mississippi is extended into New York, and in Potter county, Pa., it reaches a point where the Mississippi Valley, the St. Lawrence Basin and the Atlantic Slope are so near to one another that over an extent of a few acres it is a mere chance whether the water which falls upon the surface reaches the ocean by the Gulf of Mexico, the Gulf of St. Lawrence or Chesapeake Bay. The length of the Ohio is about 1000 miles, and it is navigable for steamboats throughout its whole course, with the exception of a rocky rapid at Louisville, which is avoided by the use of a canal two and a half miles long. Its current is generally uniform, smooth and placid, but it is subject to sudden elevations and depressions, having been known to rise twelve feet in a single night. Other large rivers of this system, with their respective lengths, are—the Yellowstone, 550 miles; the Platte, 2000 miles; the Kansas, 1200 miles; the Arkansas, 2000 miles, and the Red River, 1500 miles. All of these are navigable for long distances, and this great river system is as valuable to the country as 10,000 additional miles of sea-coast would be.

The Texas Slope embraces nearly all of Texas and New Mexico, and

part of Colorado and Louisiana. It consists of, 1st. A low plain bordering immediately upon the gulf, which is an extremely fertile region; 2d. A gently-undulating prairie-country, gradually rising toward the north-east to the elevation of a thousand feet, which is also fertile and admirably adapted for grazing; 3d. A lofty table-land, traversed in the western part by several ranges of mountains; while the eastern part is a barren plain, nearly as large as the State of Pennsylvania, called by the Mexicans the Llano Estacado, or "Staked Plain," because they drove stakes into the ground to mark out their route across it. The principal rivers are the Rio Grande (Spanish for Great River), which is 1800 miles long, and the Texan Colorado River (there is another river of the same name on the Pacific Slope), the length of which is 900 miles.

The Pacific Slope embraces the greater part of California, all of Oregon, and a part of Washington, Idaho, Nevada, Utah, Colorado, Wyoming, New Mexico and Arizona Territories. It forms three separate divisions, the northern, southern and western. The northern division embraces the section north of the Great Inland Basin, between the Rocky Mountains and the Cascade Range. This entire region is a table-land with an average elevation of from 2500 to 3000 feet above the sea, and it is traversed by many broken mountain-ridges. It is a region of general sterility, with the exception of some valleys where the soil is better constituted for fertility and the rains are more abundant; but even these oases are better adapted for grazing than for agriculture. The southern division includes the country lying between the Wahsatch and Rocky Mountains, which is drained by rivers flowing into the Gulf of California. It is in general a table-land, with an average elevation of about 4000 feet above the level of the sea, and it is traversed, like the northern division, by many broken mountain-ranges. The western division embraces the country between the Coast Mountains and the Pacific, and the valleys between this chain and the Cascade Range and Sierra Nevada. This is a region 1200 miles in length by 120 miles in breadth, containing an area of about 144,000 square miles. It is well watered and exceedingly fertile, and is the only extensive section of the Pacific Slope which is naturally capable of supporting a dense population. In the southern part of this division, so extraordinary are the prolific influences of the soil and climate, that the grasses, trees, fruit and grains attain a very remarkable development. The soil of other portions of the Pacific Slope is not hopelessly barren, for it has been discovered that in many places where it was deemed almost irreclaimable it could be made to produce excellent crops by the use of artificial irrigation.

The principal rivers of the Pacific Slope are the Colorado, the Columbia and the Sacramento. The Colorado is one of the most remarkable rivers in the world. Rising from numerous sources ten or twelve thousand feet

above the level of the sea, on the western side of the Rocky Mountains, this great river descends into the plateau of the same name, through which it has worn its present wondrous channel, the walls of which sink down perpendicularly from the edge of the table-land for a distance of more than 300 miles. The distance from the top of the bank to the surface of the river varies from 1000 to 6000 feet. The most remarkable part of its course is the Big Cañon, *cañon* (pronounced can-yone') being a Spanish word meaning the place of passage of a river between perpendicular rocky walls of great height. The Big Cañon is in the north-western corner of Arizona Territory, and begins at the mouth of the Diamond River, about 35 miles from Yamais Village. At this point its walls have an altitude of 3000 feet, but a few miles farther eastward the table-land rises to the altitude of more than 7000 feet above the sea, and the vast cliffs of the cañon tower to the height of more than a mile above the stream. The length of the Colorado is about 1100 miles. The Columbia has its sources in the Rocky Mountains, and plunging from these lofty ranges in cataracts and rapids through cañons more than 1000 feet in height enters the Pacific after a course of 1200 miles. The passage of the Columbia River through the Cascade Mountains, which is known as "The Cascades," is a scene of great grandeur and beauty. The Sacramento and its tributary, the San Joaquin, drain one of the richest countries in the world, viz., the famous gold-producing valleys of California.

The Great Inland Basin, sometimes called "Fremont's Basin," embraces nearly all of Nevada and parts of Oregon, California, Idaho and Utah. This singular region is a plateau with an average elevation of 5000 feet above the level of the sea, surrounded by rugged mountains. It is a dreary, desolate country, abounding in salt lakes and "alkaline springs"—*i. e.*, springs strongly impregnated with carbonate of soda and other alkaline ingredients; and it has a system of lakes and rivers of its own, having no connection with the ocean. Great Salt Lake is 291 miles in circumference, and has an area of 1875 square miles. Its water is almost saturated with salt, the amount of saline matter being so large that no living thing can exist in it. It contains about 22 per cent. of chloride of sodium, and forms one of the purest and most concentrated brines known. Utah Lake, a beautiful sheet of pure fresh water, thirty miles long and about ten miles broad, communicates with Great Salt Lake through the River Jordan, which is fifty miles long.

The longest river in the Great Inland Basin is the Humboldt River, which empties into Humboldt Lake, called its "sink," because there is no outlet. This river is 350 miles long, but is in no place larger than a mill-stream.

The basin of the Red River of the North embraces a part of Minnesota and Dakota. It is a plain elevated about 1500 feet above the level of the

sea, and is similar in all respects to the adjoining regions which are drained by the Mississippi and the St. Lawrence. We have already noted how near the source of the principal river of this system is to that of the Mississippi. The elevation of the water-shed between them is so slight that during high water, caused by heavy rains, boats can pass from one basin into the other.

CLIMATE, RAINFALL AND STORMS.

Climate.—We use the word *climate* in its popular sense, as applying mainly to the temperature; but technically the climate of a country signifies "its condition relative to all those atmospheric phenomena which influence organized beings." The degree of heat, the winds, the rainfall, the changes in atmospheric weight as indicated by the barometer, are all comprehended under this term when correctly applied, although popular usage is satisfied with describing a climate as warm or cold. Taking the word in its correct sense, as given above, the climate of a country is a subject of the greatest importance. The great variety of climate to be found within the limits of the United States has doubtless been one of the leading reasons for the rapid development of their resources of every description. It seems to indicate that a bountiful Providence designed this land for the home of the oppressed of every land and clime.

The first subject claiming our attention, then, is the temperature; and as this article does not claim to be a treatise on the science of physical geography, we shall deal mainly with the average *annual* temperature, unless some other average is specified. Some definitions are requisite, however, for those who have not made physical geography the subject of special study. The very name indicates that the *average annual temperature* of a place is the result obtained by daily taking observations of the thermometer for a year at that place (usually three times a day), adding up the sum of the degrees of all the observations taken, then dividing that sum by the number of these observations. The quotient will be the average for one year; but it is thought necessary to take the averages for several years, ten if possible, add them together and divide by the number of years, thus obtaining a new general average, the correctness of which will, of course, depend upon the number of years taken. Now, it is true that the equator is warmer than the poles, and that generally the climate is colder on approaching the poles, and warmer on approaching the equator. It was, however, very soon discovered by those of modern times who first gave attention to this subject that the latitude of a place does not determine its climate, any more than the length of its longest day—a mode of estimating which was handed down from the second century of our era, and which amounts, of course, to the same thing as reckoning by the latitude. The wider the range of geographical knowledge was extended, the

more plainly it became evident that countries in the same latitude did not necessarily have the same temperature; nay, more, the thoughtful student of history detected the fact that in the course of a century or more a decided change might take place in the temperature of a whole country. Some interesting remarks of this nature are made in *Observations on the Climate in different Parts of America*, by Dr. Hugh Williamson, published in 1811. He says: "It is well known that in the Atlantic States the cold of our winters is greatly moderated. As the surface of the country is cleared, a greater quantity of heat is reflected; the air becomes warmer, and the north-west winds are checked in their progress. It is generally admitted that in Massachusetts and New Hampshire the quantity of snow that fell during the winter fifty years ago was more than [the] double of what has fallen in any winter for several years past. The river Delaware, in the latitude of forty degrees, used to be frozen by the middle of November, but of late it has seldom been frozen before Christmas; and there are winters in which it is never frozen across. As the westerly winds decrease the easterly winds prevail. They have become more frequent and they extend to a greater distance across the country than before. It is well known that ships *from* Europe make their passages now in less time by one-third than they required about fifty years ago; for the north-westerly winds that formerly prevailed on the coast frequently kept off the shipping for several weeks. They are now favored by easterly winds, which have increased so much of late that they are likely to be our prevailing winds during the summer." These remarks, which we have given at length, as being specially appropriate in a work of historical and statistical information, were written six years before Humboldt placed the science of climatology upon a comparatively firm basis by publishing his *Isothermal Lines, and the Distribution of Heat on the Surface of the Globe.* An *isothermal line* is a line passing through all those places where the average annual temperature is the same. Now, if the latitude of a place determined its climate, the isothermal lines would all run in the same direction as the parallels of latitude—every place, for instance, where the average annual temperature is 59° F. would be in the same latitude, and the line connecting those places would consequently pass directly around the earth without altering its distance from the equator or from the nearest pole. This, however, is not the case. While in Europe this isothermal line of 59° goes as high as the 42d parallel of north latitude, in America it descends as low as the 35th parallel, so that the mean annual temperature at Beaufort, N. C., is nearly the same as that of Rome, although the difference in latitude is more than seven degrees. It is not necessary to go to Europe for examples. The isothermal line of 50° F. passes through New Haven, Conn., Pittsburg, Pa., and Burlington, Iowa, then near Fort Laramie, Wyoming Territory, in latitude 42° 12′ N., it turns due south and

nearly touches the 35th parallel of latitude, then, after crossing the Rocky Mountains, it turns sharply to the north and crosses the 50th parallel of latitude in the neighborhood of Vancouver's Island. Fort Vancouver, W. T., and the city of New York have, therefore, nearly the same mean annual temperature. We have given so much upon this subject, and shall give more, because this important matter is not generally understood, and great injustice is thereby done to a large section of this country. The following remarks from the *Agriculturist* for May, 1872, are worthy of consideration: "On April 10 we received by mail a cluster of peach blossoms, plucked on March 18 at Olympia, Washington Territory. Coming at a date when our own peach trees were still enjoying their winter's rest, it occurred to us to say a word about the climate of the North-west. There is a general impression that Oregon, Washington Territory and Montana must be very cold, as they are so far north, forgetting that isothermal lines (lines of the same temperature) do not correspond with parallels of latitude." The mean temperature for four cold months (December, 1871, and January, February and March, 1872) is then given for the following places: Louisville, Ky., 34°; St. Louis, Mo., 31¾°; Chicago, 26°; Baltimore, 33½°; Philadelphia, 30°; Washington, 33°; New York, 29¾; Helena, Montana, 30°; Kalama, W. T., 36°. The editor of the *Agriculturist* then continues: "The temperature at Helena, Montana, may properly be taken as a fair average for the territory. It is on the general route of the Northern Pacific Railroad, directly in the mountains, and but a few hundred feet below the highest point on the line. Notwithstanding the past winter has been the coldest ever known in Montana, it will be observed that the average temperature at Helena (latitude 46½°) for the four months was the same as that of Philadelphia, although the latter city is 4200 feet lower and 450 miles farther south. Similar comparisons may be made with Chicago and other cities. The average winter temperature at Kalama, Washington Territory, on the finished portion of the Northern Pacific road (in latitude 46°), was several degrees warmer than at Louisville or Baltimore, in latitude 39°. The greatest cold of the past winter at Kalama was 14° *above* zero."

An examination of a map upon which the isothermal lines are marked will show the great difference made in the climate by the Rocky Mountains and the warm winds from the Pacific Ocean, though some of the windings baffle all ordinary efforts to give their causes. The reader will please remember that (unless otherwise specified) the lines referred to in what follows are those divisible by five, as 45°, 50°, etc. The course of the line of 50° has already been described. The other lines, from 50° to 65°, inclusive, are also comparatively straight east of the Rocky Mountains, running nearly parallel with the equator, but the line of 45° seems to have struck out an independent course. It passes near Dover, N. H.,

then turns north, traversing nearly the whole State of Vermont, and paying a visit to the British possessions. Its course is then nearly due west, passing near Kingston (Ontario) and Toronto, and through St. Paul, Minn.; then it slants off to the north-west and takes another dip into British America, crossing the 50th parallel of latitude; then it sweeps around toward the south and comes down to a point within a hundred miles of Santa Fé; then it crosses the Rocky Mountains, after which, with a course nearly due north, it makes again for British America, crossing the boundary at a point a few miles west of the Rocky Mountains. The way in which these lines approach each other near Santa Fé is one of the most puzzling phenomena of climatology. Five of them pass so near to the capital of New Mexico that any one who is at Santa Fé can have his choice of climate varying in average temperature from 45° to 65°, without going more than three hundred miles to the south or one hundred miles to the north.

We hope that the reader will pardon us for the length to which we have drawn these remarks, for it is impossible to treat this important subject properly without entering somewhat into detail. Many who have not made the science of climatology a subject of special study are still under the thraldom of the old climatic division of the earth into the Torrid, North Temperate, South Temperate, North Frigid and South Frigid zones. To such it may seem to be a species of treason to break loose from that thraldom. We offer for their consideration the following remarks of the Hon. Lorin Blodget, the highest authority with reference to the climate of the United States, whose work elicited an expression of strong approval from the illustrious Baron Humboldt: "The definition of zones, which was so long in vogue, has really no place in nature, and the actual measures of heat alone constitute the various belts of climate. With the variable surface and continental position of the temperate latitudes, no definition is possible except from actual measurement, and belts actually vary much more than could be inferred from any theory—at the Pacific coast of this continent in a manner incredible, if the statistics were not so abundant and conclusive. A summer heat of the fiercest character, as at Fort Miller, San Joaquin Valley, California, is but a few miles removed from a summer of even more extreme refrigeration, cold enough to require winter clothing at the midday of the summer. Both of these points are constant or fixed, and not less important as physical facts than the presence of the mountains of the vicinity. To give these measures of heat a permanent form for temperate latitudes requires an *actual survey*, as it may be called, of every considerable district and the accumulation of the statistical elements of thermometric observation. Though the isothermal lines may appear an arbitrary or artificial mode of representation, they are, in truth, less artificial than the measures of temperature, since the

uomenclature of the thermometer is wholly artificial." If anything could be added to strengthen these remarks, it may be the statement that no mode of represeuting climates could be fouud more arbitrary, artificial or wide of the truth than the old division into zones. The reader will now be enabled to understaud why it is that the United States, though not possessing a square mile of land within the tropics, contain some regions in which the climate is what is called "tropical." Professor Guyot says: "The true torrid zone may be regarded as terminating, on each side of the equator, at the isothermal of 70° Fahrenheit, beyond which the characteristic plauts and animals of tropical regions disappear." Portions of Florida, of Texas and of California which lie south of the isothermal of 70° are, therefore, in the *true* torrid zone. Professor Guyot makes another statement, upon which, as its acceptance would discredit a great part of what we have just written, we feel obliged to put a large grain of salt furnished by the highest scientific authority. He says: "In tracing the isothermals, according to Humboldt's example, the local influence of altitude is *usually* eliminated. This is done, as in the accompanying map, by adding to the observed temperature of a place 1° for every 333 feet of its elevation, thus reducing the temperature to that which the place would have if situated at the level of the sea." While this statement is strictly true with reference to European physicists, among whom Professor Guyot, by his method, may be classed, iu America the uature of the country is such that a series of isothermal lines drawn upon the plan mentioned by Professor Guyot would be, for all practical purposes, worse than worthless. Suppose, for instance, that the average annual temperature at a station situated 7000 feet above the level of the sea is ascertained *by actual observation* to be 49° above zero. This statement would give its *true* temperature; but if the rule be applied, twenty-one degrees must be added to the number given, and the station which has a very temperate climate would then belong on the isothermal line of 70°, which, as Guyot has just iuformed us, is at the edge of the *true torrid zone.* Of what practical value is a purely theoretical climate which can only be found by burrowing down to the sea-level? The very influence which modifies the climate is thus made use of to vitiate the statement of the temperature, and the greater the altitude of the stations, the more unreliable are the isothermal lines drawn through them. We have been assured by the Hon. Loriu Blodget that the isothermal lines drawn on the charts accompanying his *Climatology of the United States* represent actual climates, no such allowance as that suggested by Professor Guyot having been made. As Mr. Blodget's lines have been followed in nearly all of the published charts (those of Warren, Professor Brocklesby and others), the reader will understand that the remarks of Guyot refer almost exclusively to his own charts and to those of European *savans.* One eminent American scientist attempted to use

this foreign method, and presented a chart drawn in accordance with its requirements for the inspection of one of our learned societies, but the experiment was not deemed a success by his associates.

The climate of America was so misrepresented during the eighteenth century by European writers that the book by Dr. Williamson from which we have quoted was written in its defence. How great an injustice was done will appear from Williamson's complaint: "America is described by writers of great celebrity [Buffon, Reynolds, Robertson and Kames] as a world lately risen from the ocean; as a country in which the frigid temperature of the air seems to be impressed upon its animal productions; as a country in which some vice of the climate, or some combination of the elements, prevents the expansion of animated nature, and causes man and beast to degenerate; a country for which a new and inferior race of men has been created." Dr. Williamson combats these assertions with great zeal and vigor. He enters into an elaborate argument to disprove the assertion of Kames that Indians have no beards, and, like a skilful advocate, he grudges neither labor nor pains to find materials for his plea. We have given elsewhere in this article some of his statements with reference to the changes in the climate of America caused by settlement and cultivation. He says in another place: "When our ancestors came to New England, the seasons and weather were uniform and regular. Autumn began with September, and the winter set in about the end of November, continuing until the end of February, when the spring began, and advanced without sudden fluctuations in temperature. The summer lasted but six weeks, and was insufferably hot. Now the seasons are totally altered, and the weather is far more changeable: the autumn begins and ends later, and the winter does not set in, in its severity, before the first of December." It was Dr. Williamson's object to "compare the present state of the climate in these parts with observations that were made fifty or sixty years ago. If it will appear that the climate of the United States is materially altered in the memory of man, it will then be proper to consider what has been the cause of that alteration; whether the cause is capable of producing great effects, and how long it may be expected to operate." In estimating the power of "the cause of that alteration," the patriotism of Dr. Williamson carries him to great lengths. He says, for instance, "Cold climates are greatly improved by cultivation. When a considerable part of our mountains shall be subjected to the plough, and the Atlantic States shall be fully peopled, I deem it probable that cotton will be produced in Pennsylvania and oranges in Maryland." While it is true that changes are caused by cultivation and the clearing away of forests, there is a limit to the power of such causes. Professor Brocklesby says: "In countries covered by dense forests the winters are longer and more uniform in temperature than in dry cultivated regions, and in summer the mean tempera-

ture of the latter is higher than that of the former. When the woods are levelled and the surface of the earth is exposed to the light of the sun, the summer becomes longer and the winter less uniform in temperature." The climate of New England has been changed in this manner (as is shown above) within the past two hundred and fifty years; but the causes mentioned have by this time exhausted their force, and no one expects the introduction of a tropical or semi-tropical climate into the "land of hasty pudding."

There is another important fact the statement of which will explain why it is that Helena, Montana, and other places which are situated at a considerable distance above the level of the sea and in comparatively high latitudes, can have so mild a climate as that which they certainly possess. It is the general impression that the greater the elevation of a place above the level of the sea, the colder is its climate. This is in the main true, but there is an important exception to this rule which some of the earlier physical geographers have not sufficiently dwelt upon—viz., that upon lofty plateaus or table-lands, *where large areas of surface are raised above the level of the sea*, the effect of the altitude seems to be counteracted by the extent of land exposed to the action of the sun. Denver, Colorado, is 6000 feet above the level of the sea, and yet it is as warm as Baltimore, which is in the same latitude. At Fort Benton, Montana (latitude 47° 50), which is nearly 2700 feet above the level of the sea, the average temperature is 10° warmer than at St. John's, Newfoundland, which is one-third of a degree further south and (at the point where the observations were taken) 140 feet above the sea-level.

The important question now arises, How does the climate of the United States compare with that of various parts of Europe and of Asia? There are, perhaps, few questions which have received so many conflicting and irreconcilable answers as the one which we have just stated. Williamson says (writing in 1811): "The medium temperature of our winters in the Northern States of America has been marked at twenty-eight degrees below the temperature of corresponding latitudes in Europe, and the medium temperature of our summers at eight degrees above the temperature of similar latitudes." He was not, however, prepared to receive this statement as a positive truth, for he continues: "Hasty conclusions have been drawn from observations of this kind without considering the climate in other parts of America, the changes which cultivation has produced in the climate of the old continent, or the changes which the same cause has already produced in some parts of America." We have frequently heard the general statement that, "As a rule, the climate at every place in America is the same as that at a point in Europe ten degrees farther north." We have already shown that the average annual temperature at Beaufort, N. C., is the same as that at Rome, though the difference in latitude is

nearly seven degrees. New York and Dublin have about the same mean temperature, though the difference in latitude is 13°; and near Lake Superior, in latitude 50, the same mean temperature is found as at the North Cape, in latitude 72°. There is evidently a difference, but ten degrees of latitude do not fit in at every point as the proper number. The eastern portion of America is colder than the western portion of Europe, and the difference in temperature increases on approaching the north pole.

Another point which is certain is that the climate in the eastern portion of America is *changeable*. We once heard an Englishman say with great emphasis, while shivering under the influence of one of the coldest days of a winter on the Atlantic Slope, "This is a terrible climate. In the summer the weather is intolerably hot, and the winter is worse." This is something which the average *annual* temperature does not indicate. Professor Loomis says, in his excellent *Treatise on Meteorology:* "The mean temperature of New York is the same as that of Liverpool, yet the difference between the mean temperature of the three summer months and that of the three winter months is twice as great in New York as in Liverpool. Throughout England the heat of summer is insufficient to ripen Indian corn, while the ivy which grows luxuriantly in England can scarcely survive the severe winters of New York." In New York (latitude 40° 33′) the thermometer has risen to 104°, while in Singapore, Malacca (latitude 1° 17′ N.—*i. e.*, it is nearly under the equator), the thermometer has never been known to rise above 95°. On the other hand, in New York, the thermometer has fallen as low as 10° below zero, while at Singapore it has never, so far as is known, gone below 66° above zero. The range of the thermometer at New York is therefore 114°, while at Singapore it is only 29°. This is not the largest range known in the United States. At Albany, N. Y., the range is 131°; at Kinderhook, N. Y., and Chicago, Ill., it is 132°; at Montgomery, N. Y., and Fort Snelling, Wis., it is 137°; at Fort Howard, Wis., it is 138°; and at Lowville, N. Y., it is 140°. More than twice the range at Singapore during the entire year has been passed over in a single day in the north-eastern part of the United States. Professor Loomis says: "In Hanover, N. H., Feb. 7, 1861, at noon, the thermometer stood at 40 degrees above zero; the next morning it stood at 32 degrees below, making a range of *seventy-two degrees* in *eighteen hours.*" At Hartford, Conn., at the same time, the thermometer fell *sixty degrees* in *sixteen* hours. Such sudden changes (at least through so great a range of temperature) are not known in Western Europe. The greater severity of the wind here during the colder months also renders the actual difference to the senses much more decided than is apparent from examining the thermometer. Dr. Kane, while in the Arctic regions, found that the temperature of 40° below zero without a wind was more endurable than 10 below zero with one. "The piercing and violent winds which follow a storm, or a period of

warm weather, appear colder, or are felt to the senses as colder, than the thermometer would indicate, and the intense cold of the winter in the interior is not so uncomfortable as it is at Boston, though the thermometer may fall many degrees lower." The remark of Mr. Blodget which we have just quoted applies mainly to the north-eastern part of the United States, and what we have said of a changeable climate does not refer to the country west of the Rocky Mountains.

When the climate of the Pacific coast is compared with that of the Atlantic coast and of the interior, it is found that the former is much more uniform. San Francisco, St. Louis and Fortress Monroe are in about the same latitude. The difference between the mean summer and winter temperature of San Francisco is less than *seven* degrees, of St. Louis, *forty-four* degrees, and of Fortress Monroe, *thirty-six* degrees. The Pacific coast has a climate very similar to that of Western Europe. The atmosphere is dry and invigorating as far north as the Columbia River. The summers are comparatively cool and the winters warm and equable. "These peculiar climatic features," says Professor Brocklesby, "are attributed to the combined influence of the heated regions of the interior and the presence of masses of cold water off the coast, which appear to flow down from the Arctic Sea."

The climate of that portion of the United States which lies within the true torrid zone is also much more uniform than on the North Atlantic coast and in the interior. The mean annual temperature of eighteen different places, as reported in the Army *Meteorological Register*, is 72.44°. The mean summer temperature of the same places is 82.73°, and that of the winter, 60.31°. The mean annual temperature of Key West, Fla., is 76.4°; that of the summer is 82.3°, and that of the winter 69.7°. The mean annual temperature of New Orleans is 67.6°; that of the summer is 79.6°, and that of the winter is 55°. The difference between the mean temperature of the summer and that of the winter is therefore, at Key West, *less than thirteen degrees*, and at New Orleans, *twenty-four degrees*, while at Cambridge, Mass., it is *forty-two degrees*, at Hanover, N. H., *forty-six* degrees, and at Fort Kent, Maine, it is *fifty* degrees. Further remarks upon the climate are reserved for the articles on the separate States [see TOPOGRAPHY].

Rainfall.—In giving the *rainfall*, the amount of melted snow is, of course, included in the reckoning. Even with this included, the rain of summer is, in that section which lies east of the Rocky Mountains, everywhere somewhat greater than the rain of winter. "In New England," says Professor Loomis, "the difference between the rain for these two seasons is less than 10 per cent.; in the State of New York it is nearly 50 per cent.; in Virginia and the Carolinas, 100 per cent.; in Florida, 200 per cent.; in Texas, 75 per cent.; in Ohio, 25 per cent.; in Michigan and

Wisconsin, 140 per cent.; while in Iowa and Kansas it is 300 per cent.—that is, the fall of rain in summer is four times as great as it is in winter. On the Pacific coast this law is reversed. In California the rain of winter is more than twenty times as great as the rain of summer, and in Oregon it is seven times as great."

Much greater care is required in collecting materials for giving the average yearly rainfall than is requisite for reckoning the average temperature. The average temperature of one year at a given point differs very slightly from that of another year at the same place; but rain is the most capricious of all the meteorological phenomena, both as regards its frequency and the amount that falls within a given time. To obtain the mean fall of rain at any place requires the continuance of observations for a considerable number of years, for it not unfrequently happens that the rain of one year is double that of some other year at the same place. It is interesting and amusing to notice that so important an observation as that of the quantity of water falling in rain had its origin, some two hundred years ago, in bold doubts of the prevailing theory that fountains and rivers were supplied from internal masses of water—arteries and veins of the sea, circulating the life-blood of the earth. "A French author, Denys Papin, printed a work at Paris, in 1674, to prove that the supply of rain and snow-water was sufficient to keep the fountains and rivers constantly running. He had taken observations for three years, the result showing an annual fall, respectively, of 18.7 inches, 8½ inches and 27½ inches. He then struck the average, making it eighteen inches and two and one-third lines (or tenths). His conclusion was that but a sixth part of the fall was necessary to keep the rivers and fountains running continuously through the whole year."

The average annual fall of rain for various States is thus given by Professor Loomis: Alabama and Louisiana, 56 inches; Oregon, 49; Florida, Virginia, the Carolinas, Tennessee and Kentucky, 48; Georgia, 44; Arkansas and Missouri, 42; Maryland and Pennsylvania, 41; Ohio and New England, 40; New York, 37; Michigan and Wisconsin, 32; Iowa and Kansas, 31; Texas, 29; California, 18; New Mexico, 13. This claims, of course, to be only an approximation. An instance of the difficulty of positive statement, and of the necessity of continuing the observations for a long time, is found in the reports of the rainfall at Key West, Fla. Six years' observations at one time gave an average of 30.78 inches; six years' observations, taken somewhat later, gave an average of 47.65 inches.*

* The reader will now be able to estimate the difficulty of the task of Mr. Blodget, who, when constructing his hyetal, or rain-chart, of the United States, had not a single *reliable* station in the North-west to assist him in his estimates, and was therefore obliged to trust entirely to his accurate and extensive acquaintance with the general principles of climatology and with the nature of the country in question.

Perhaps as convenient a division of the country as could be devised is that adopted by Warren, iuto the region of frequent rains, the region of periodical rains and the region of scanty rains. The region of frequent rains extends from the Atlantic coast westward to about the 100th meridian of longitude. This region, considered as a whole, is exceedingly well watered, and the rain is quite equally distributed throughout the year. Along the Atlantic coast, as far south as Washington, very nearly the same annual quantity of rain falls. In the Gulf States, and along the Atlantic Slope south of Washington, the annual amount of rain is much greater than in the other sections, and the summer rains (as we have shown above) are much more abundant than those of the winter. In the interior the annual quantity is less, and generally much less rain falls in the winter than in the other seasons. The annual rainfall on the Atlantic coast from Florida to Maine varies from 63 to 40 inches, and from the Gulf of Mexico to Wisconsin, from 63 to 32 inches.

The region of periodical rains comprises the western division of the Pacific Slope. Throughout most of California but little rain falls except during the six colder months, and during the four months from June to September rain is almost unknown. The quantity in winter somewhat exceeds that which falls in the spring. Thus, at Fort Humboldt, Cal. (latitude 40° 46′), the annual rainfall is 34.59 inches, of which amount 13.51 inches descend in the spring, 1.18 in the summer, 4.87 in the autumn and 15.03 in the winter. There is so little rain during the summer months, when the wind blows almost uninterruptedly from the south-west, because this air comes from a colder ocean; and passing over a heated land, its vapor is not condensed until it meets the Sierra Nevada Range, on the eastern border of California. Along the shores of the Pacific the annual amount of rain increases with the increase of latitude; for while the annual rainfall of San Francisco, in latitude 37° 38′ N., is only 22.18 inches, that of Astoria, latitude 46° 11′, is 53.49 inches, and that of Sitka, in Alaska, is 89.94 inches. In this particular the Atlantic coast differs from the Pacific, for the rainfall there decreases with the latitude. The

The figures given on the chart for the North-west and for the Great Interior Basin *are purely hypothetical*, yet subsequent extensive and reliable observations, both by amateurs and by the Signal Service Bureau, have served only to confirm these remarkable calculations of Mr. Blodget. His work, published in 1857, is still considered the authority, with reference to all the topics upon which it treats, both in this country and in Europe. The only error of any importance on the chart in question—one which we confess that we could not have detected if he had not himself called our attention to it—arose from a geographical uncertainty for which Mr. Blodget is not responsible. On all previous maps the now famous Black Hills [see page 154] had been located "by guess," and had been placed many miles out of their true position. This led to a corresponding error in determining the limit of the "Arid Plains."

southern portion of the Great Inland Basin, with much of New Mexico and Arizona, is also a region of periodic rains; but the summer and autumn are rainy and the other portions of the year dry. Mr. Blodget says that the district of periodic rains "extends eastward in a modified form to embrace a part of Texas."

The region of scanty rains embraces the country between the 100th meridian of west longitude and the Cascade and Sierra Nevada Mountains. It includes the northern and southern divisions of the Pacific Slope, the northern and central portions of the Inland Basin of Utah, the table-lands of the Texas Slope, and the sterile region east of the Rocky Mountains. Among the mountains of this region a considerable quantity of rain falls, and violent showers are experienced at all seasons of the year. Some of the mountain valleys are also comparatively well watered, but the annual rainfall in the regions most favored with moisture is seldom more than twenty inches. Thus, at Santa Fé, situated on a plateau enclosed by mountains, the annual rainfall is 19.83 inches, and that of Fort Laramie is 19.98 inches. In the desert region through which the Colorado River passes, it is three inches; in the Great Inland Basin, five inches; in the Great Plain south of the Columbia River, ten inches; in the Llano Estacado [see page 159], ten inches; and in the sterile region east of the Rocky Mountains, from fifteen to twenty inches. The causes of the dryness of this section "are to be sought," says Professor Brocklesby, "in the high mean temperature it possesses, notwithstanding its elevation and the fact that the lofty mountain-ranges on the west arrest the constant and humid current which flows easterly over the Pacific Ocean. The greatest amount of rain reported for any given year at any place within limits of the United States (excluding Alaska, see page 153) is probably the fall in 1846, at Baton Rouge, of 116.6 inches, and the smallest, the fall at Fort Yuma (at the southern extremity of California), in 1853, of 1.78 inches. The average annual rainfall at the latter place is only 3.24 inches.

The average annual number of rainy or snowy days—*i. e.*, days upon which rain or snow falls at all—in various States and Territories, is thus given in the *Smithsonian Contributions to Knowledge:* Maine, 93 days; New Hampshire, 76; Vermont, 89; Massachusetts and Connecticut, 98; Rhode Island, 96; New York, 109; New Jersey, 118; Pennsylvania, 119; Delaware, Maryland and District of Columbia, 83; Virginia, 85; North and South Carolina, 89; Georgia, 83; Florida, 91; Alabama, 98; Mississippi and Louisiana, 92; Texas, 58; Arkansas, 75; Kentucky, 89; Ohio, 116; Michigan, 117; Indiana and Illinois, 107; Wisconsin and Minnesota, 89; Iowa, 98; Missouri, 70; Indian Territory, 73; Kansas, 77; Arizona and Nebraska, 75; Wyoming, 72; New Mexico, 56; California, 50; Oregon, 131; Washington Territory, 132; Alaska, 235. The

average for New Mexico is very uncertain, varying between 31 and 93 and depending in a great measure upon the elevation of the place above the level of the sea and other causes. The extremes in California—Fort Yuma, 11 days; Fort Humboldt, 82 days; and Fort Crook, 83 days—were not included in the calculation; and in this State, as well as in Oregon and Washington Territory, local causes render it difficult to give an average for the whole extent of the district.

Some foreign figures will now be given for comparison with the above data. At the Stye, in the lake district of England, being, so far as is known, the wettest spot in Great Britain, 38.9 inches of rain fell in the month of January, 1831. The average annual rainfall at that place is 206 inches, and in 1866 the fall was 224½ inches. In the West of Great Britain and Ireland, in the immediate neighborhood of high hills, the average rainfall is from 80 to 150 inches, and in some years it is higher. Thus, at Seathwaite, in Cumberland, it was 183½ inches in 1861. Away from the hills, however, in the West of Great Britain, it is from 30 to 45 inches, while in the east of the island it is only from 20 to 28 inches. Lima, Peru, Thebes, Egypt, and Tatta, North Africa, according to Loomis' tables, have no rain. Cairo, Egypt, has 1.31 inches; Kurrachee, Hindostan, 1.5 inches. On the other hand, Aracan, Hindostan, has an annual rainfall of 200 inches; Maranhao, Brazil, 280 inches; Matouba, Guadeloupe, 290 inches; and Cherapoonjee, Hindostan, 592 inches.

Snow.—It is to be regretted that greater care has not been exercised by observers of meteorological phenomena in obtaining and retaining statistics of the average annual fall of snow *as such*. As we have already noted, it appears in the above figures, included in the rainfall. Snow, when melted, makes a very small quantity of water, as compared with its depth in its previous condition. It requires at least ten inches of snow to give one inch of water, and some writers place the proportion as high as twelve to one. When the snow has drifted to any great extent, it is obvious that the difficulty of obtaining correct figures is greatly increased. Professor Loomis, with his usual fulness, gives some figures for various localities. In the State of Maine the average annual fall of snow is seven and a half feet, and the amount in a single year has been known to exceed twelve feet; but this amount is not all seen at the same time. In Vermont and New Hampshire the annual fall is six feet. In Central Massachusetts the annual fall is four and a half feet, and the snow has been known to lie five feet on a level. In Connecticut the average annual fall is three and a half feet; in New Jersey, two and a half feet; in Southern Ohio, one foot and a half; and in Iowa, one foot. A slight fall of snow occasionally occurs at San Francisco, Cal., at New Orleans, and at Galveston, Texas. Snow sufficient for sleighing has been known at Charleston, S. C. The frequent occurrence of snows in April, and even in May, in the latitude of

Washington is a striking phenomenon of the climate. In recent years a quantity of snow has sometimes fallen in April in the interior valleys of Virginia—in several instances a foot or more in depth. It has been well said that "It is the most decisive proof, perhaps, of the extreme character of the American climate, in comparison with the European, that the snows of winter are thrown so far south, and into latitudes where the summer heats are tropical." On January 10, 1800, there fell at Savannah the deepest snow, accompanied by the greatest cold, ever remembered in lower Georgia. The snow was three feet deep on a level. On March 6, 1843, snow fell for fifteen hours at Augusta, Ga., covering the ground fifteen inches deep. Mr. Blodget sums up the snow question, *as to the amount remaining on the ground* in winter, with his usual clearness, as follows: "The quantity of snow is always large in the New England States, the elevated and northern districts having an average of perhaps two feet constantly remaining on the ground in winter. In Northern New York it is the same, and as much or more is found in Canada at all points north of Lake Ontario. In the elevated portions of Southern and Eastern New York the average persistent quantity does not reach a foot in depth except on mountains. In the basin of Lake Ontario, as it is sometimes called, there is no regular quantity on the ground in winter, and for half the time, on an average, none remaining. The winter snows are often excessive from Buffalo eastward, and they are much more likely to be so [in that section] than at points west of Lake Erie. In the Lake Superior region there are snows which may be called profuse in comparison with those of the plains, yet none equal to the extremes in New York. The southern part of the lake district—including the south end of Lake Michigan, the State of Michigan bordering on Detroit, and the whole country bordering Lake Erie on the south—is one in which the snows melt almost immediately as they fall, and rarely lie on the ground as a winter covering. At Cincinnati the careful observations of Dr. Ray show an average of *nineteen* inches annually for sixteen years, most of this melting immediately after falling. Farther west the quantity is less, and is not more regular in remaining on the ground, though the temperature is much lower. It is small over the upper plains of the Missouri and the Saskatchawan. Some minor inundations of the rivers of the plain are caused by the melting of the snows, but they are never equal to those caused by the rains of early summer. Below or south of the 41st parallel the snows are extremely irregular, and yet often profuse and excessive. They are more likely to occur in February and the spring months as extraordinary phenomena than in the early part of the winter, and instances are frequent of profuse April snows."

Hail.—In the United States large hail falls chiefly in summer and the latter part of spring. On the 13th of August, 1851, hailstones fell in New

Hampshire weighing *eighteen* ounces. In 1850 a very destructive hail-storm occurred at Pittsburg, Pa. Many of the stones weighed from eight ounces to a pound and over, and measured from nine to fourteen inches in circumference. So great was the force with which the hail descended that the roofs of warehouses covered with sheets of iron were completely riddled with holes, some of them so large that a man's arm could be thrust through them. Hailstones weighing half a pound have fallen in several places in this country.

Storms.—The storms of America seem to take their rise in the vast plain which lies immediately to the east of the Rocky Mountains, and then generally advance in an east-north-easterly direction across the country. The direction has been observed to vary from about due east to north 54° east. When a great storm springs up near the Mississippi, the wind at St. Louis is generally easterly, while throughout New York and Ohio the wind is from the west. Subsequently this easterly wind is felt at Cincinnati, then at Pittsburg, and afterward at New York, while the entire storm is travelling steadily eastward—that is, the easterly wind is propagated from St. Louis to New York in a direction opposite to that in which the wind in the district over which it passes is blowing before its arrival. The rate at which a storm thus travels varies from zero to 44 miles per hour. It generally makes the distance from St. Louis to New York in about 24 hours, and from New York to Newfoundland in another 24 hours. When a storm in North America is stationary, or nearly so, its form—that is, the area occupied by it—is nearly circular; but when it travels rapidly, it takes an oval form, with the longest axis at right angles to its onward course. The winter storms of the United States are therefore said to move sideways. As rain and snow are produced under circumstances exactly alike, with the exception of temperature, the same storm frequently furnishes snow in the northern part of the United States and rain in the southern part. After the centre of the storm has passed, a west wind springs up at St. Louis, and is felt successively at Cincinnati, Pittsburg, and finally at New York, having been propagated in the same direction as that in which the wind was blowing in the district passed over by the storm before the latter arrived.

Tornadoes.—Tornadoes have been classed by some writers among *tropical* storms. They occur more frequently in the tropics than elsewhere, but this country has its full share of them. They should not be confounded with hurricanes, but have been correctly defined as "whirlwinds of *limited extent and duration*, though not inferior to hurricanes in power." They vary in diameter from a few feet to several hundred yards, and continue but a short time at any one place. They advance at a velocity of from thirty to fifty miles an hour, and leave tracks marked out only too plainly by the evidences of their terrible power. The wind revolves with such

violence as to prostrate the largest trees, demolish buildings and transport heavy bodies to a great distance. Fowls are often entirely stripped of their feathers, and light bodies have been carried as much as twenty miles by these violent visitors. In one which occurred in Northern Ohio, February 4, 1842, large buildings were lifted entire from their foundations, carried a distance of several rods and then dashed to pieces. The fragments were strewn all along the track, and some of the pieces were carried a distance of seven or eight miles. Large oak trees two feet in diameter were snapped off like reeds, and others were so twisted as to be reduced to a mass of splinters not much thicker than a man's finger. The breadth of the track did not much exceed half a mile, and the most destructive portion was still more limited. The duration of this tornado at one place did not much exceed one minute. In one which passed over Maysville, Ohio, in the same year, a barn containing *three tons* of hay and *four horses* was lifted entirely from its foundations. In another, at Natchez, Miss., May 7, 1840, "houses were burst outward," being drawn into the vacuum formed at the centre of the whirlwind. Three hundred and seventeen persons were killed in the city and on the river. Sheet-tin was carried twenty miles; windows were taken thirty miles from their point of departure. The leaves and buds of plants were in a measure seared, so that those which did not die outright were so crisped that their growth was suspended, and it was more than ten days before they recovered sufficient life to begin growing again. In May, 1855, a tremendous tornado passed over Cook county, Illinois. The trunks of trees of the largest dimensions were twisted off, and a heavy frame house, containing nine persons, was carried up into the air; the building was torn to pieces, three persons were killed and the rest severely injured. During the same year, a tornado that swept over Cass county, Missouri, moved from their places large rocks weighing more than a ton, which were imbedded in the earth. On the 23d of February, 1875, a similar visitant passed over Pettis county, Missouri. The principal damage was done at Housatonia, a village on the prairie of three hundred inhabitants. A train of thirteen freight-cars was hurled from the track, and some of the cars were carried a distance of from 50 to 90 yards. Nineteen residences and business houses were totally demolished, two of the latter burning, with their contents. Several persons were mortally wounded. Half of the dépôt building was torn off, and, according to one account, "a man on the platform was lifted 200 feet and somewhat injured." The width of the track of this storm is stated at from 150 to 300 yards, and just out of its path was a school-house containing forty pupils. The duration at any one point was only *thirty seconds*. These tornadoes generally appear in summer or in the warmer months, but in rare instances they occur in the cold months as the nucleus of a widely-extended and violent general storm. The length of their track rarely

exceeds fifty miles. One which occurred at New Harmony, Ind. (April 30, 1852), was traced for a distance of more than 200 miles, and the rate of progress was calculated at nearly 60 miles per hour; but this was an exception to the general rule. The frequency and distribution of these tornadoes is a subject of great practical interest. They occur over every part of the United States where the rain falls in abundance, and at the seasons when the rainfall is largest. There are none on the great plains, so far as is known, at a distance from the Mississippi sufficient to reach the dry regions. They are most numerous in the Mississippi Valley, and thence eastward they are quite equally distributed from Canada to Georgia. In the old forests, particularly those of New York and Pennsylvania, the tracks of the tornadoes which prostrated the older growth a century since are still traceable by the belt of trees of uniform size and of peculiar aspect which have grown up subsequently. Judging of their frequency by the number of such tracks, these storms must be placed at very remote intervals for any one locality. Such traces would be visible for several hundred years, and they now exist in only a few conspicuous lines, averaging about fifty miles apart, and lying in threads of from thirty to two hundred rods in width and ten to fifty miles in length.

Cyclones.—We have purposely reserved for the last the mention of the *cyclones*, which are "those tremendous rotary tempests which, under the various names of 'hurricanes,' 'storms' and 'typhoons,' prevail for the most part within or near the tropics, near the equatorial limits of the trade-winds, but extend likewise into the higher latitudes." They are called cyclones, a name derived from the Greek word *kuklos*, meaning *circle* or *whirl*, because the wind *revolves around an axis*, while the body of the storm has at the same time a progressive motion. In the Southern Hemisphere the cyclone rotates in the same direction as that of the hands of a watch, while in the Northern Hemisphere its rotation is in the contrary direction. The direction and velocity of the wind are, however, entirely distinct from those of the storm's progress. While the storm advances at the rate of from 10 to 40 miles per hour, the velocity of the wind may exceed 100 miles per hour. These terrible storms extend over a circle from 100 to 500 miles in diameter, and sometimes 1000 miles. In the West Indies their diameter is occasionally the smallest just given, but on reaching the Atlantic it is increased from 600 to 1000 miles. Sometimes, on the contrary, they contract in their progress, and while contracting increase terribly in violence. The vehemence of the wind increases from the margin to the centre, with the exception of a limited space exactly at the centre, where the atmosphere is frequently quite calm. The distances traversed by these desolating tempests is immense. The gale of August, 1830, which fell upon St. Thomas, in the West Indies, on the 12th, reached the Banks of Newfoundland on the 19th, having travelled more than *three*

thousand nautical miles in seven days; and the observed track of the Cuba hurricane of 1844 was but little inferior in length. The area over which the latter prevailed throughout its whole length was computed by Mr. Redfield to be 2,400,000 miles, an extent of surface equal to *two-thirds of that of all Europe.*

The West India cyclones generally originate between latitude 10° and 20° North, and longitude 50° and 60° West—that is, in the Eastern Antilles or in their vicinity—and move north-westwardly to the coast of Florida. Near the parallel of 30° their course is almost exactly north, and soon they begin to veer to the east, after which their course is nearly parallel to the coast of the United States, over the eastern shore of which and the adjacent ocean they sweep along; then, crossing the ocean, they reach Western Europe, beyond which they finally expire. They occur most frequently from July to October, inclusive. Of 127 West India cyclones, recorded in 354 years, from 1493 to 1847, 15 occurred in July, 36 in August, 25 in September and 27 in October, making a total for the four months of 103, and leaving only 24 to distribute through the remaining eight months, of which January, April and May are the only ones which, according to this record, are entirely free from these destructive storms. Some idea of the immense force of these tempests may be derived from the description of the hurricane at Barbadoes, August 10, 1831: "By this awful visitation the whole face of the country was laid waste, 2500 persons perished and 5000 were wounded. The force of the wind may be estimated from the fact that a piece of lead weighing 400 pounds was lifted and carried to a distance of 1800 feet." The Gulf States and those on the southern portion of the Atlantic coast are the only portions of the United States which are exposed to these terrible visitors. "When a storm has encountered the Gulf Stream, it continues to follow its progress eastward," so that most of the storms which prevail on the coast of the United States have their centre over the Gulf Stream and follow the path of the stream in its eastward course. It is doubtless this well-established fact which saves the northern portion of the United States from the worst effects of the cyclones, which generally leave the immediate vicinity of the coast long before reaching the latitude of New York. Even upon that portion of the Atlantic coast which is exposed to cyclones, many of them are so far out at sea as to be felt but moderately on the coast, and some not at all; but the more common line is very near the coast-line for the centre of the storm or its track of greatest violence. We shall now give some notes of the effects of some of these cyclones, taken for the most part from the list compiled by Mr. Blodget. At Charleston, S. C., September 15, 1752, all wooden houses above one story in height were either beaten down or shattered. Trees which were stripped of their leaves again blossomed and bore fruit in the late autumn which followed. This remark-

able phenomenon has been noted several times in connection with these storms. After the hurricane of September, 1804, "fruit trees flowered and bore fruit a second time;" and this was also the case with the mulberry trees of the Gulf States after the cyclone of September, 1772. In 1780 a hurricane which swept over the province of Louisiana destroyed all crops, tore down buildings and sunk every vessel or boat which was afloat on the Mississippi River. The town of Brazos Santiago, Cameron county, Texas, must possess a great deal of vitality, for it was destroyed by the hurricane of October 2, 1837, and we read that within seven years, when the hurricane of August 4–6, 1844, passed over the southern portion of Texas, after its departure not a vestige of a single house remained at Brazos Santiago; yet it still exists as a port of entry, with a commerce worth about $1,500,000 per year.

MINERAL AND METALLIC PRODUCTS.

Precious Stones.—Scarcely any precious stones have been found in the United States. A single diamond has been discovered in Rutherford county, North Carolina, and it is said that some of these gems have been found in California. Topaz occurs at Monroe, in Connecticut, chalcedony in many localities, and agates and carnelians are numerous along the banks of the Upper Mississippi and the shores of Lake Superior. The more valuable precious stones, however, the ruby, the emerald, etc., have not yet been found in this country.

Building-stones.—Granite, marble, limestone and sandstone are the principal building-stones of the United States. Granite is abundant in New England, and especially in New Hampshire, where it forms one of the principal articles of export, as it is extensively employed for building purposes throughout the country. Buildings constructed of this material may be found in all the principal towns and cities along the Atlantic coast from Maine to Texas. Immense deposits of sandstone, of an excellent quality, occur throughout the Connecticut Valley and many other regions. Marble is also very widely distributed, being found in New England, in the Middle, Southern and Western States, and also in California. The white marble of Vermont is of a very superior quality. Variegated or clouded marbles also occur in this State, and likewise in Pennsylvania, Maryland, Tennessee and California. The marbles of the two last-named States are extremely beautiful. Both sandstone and marble are much used for the construction of buildings in the chief cities of the Atlantic Slope. Limestone abounds in the Mississippi Valley, and is there the principal building-stone.

Salt.—No beds of rock-salt, such as are mined in Europe, have yet been discovered in the United States, though vast quantities of this commodity cover the saline plains of the Great Inland Basin. The salt of

commerce is obtained in this country by the evaporation of the water obtained from saline springs. Among the most productive of these are the salt springs of Syracuse, N. Y. (where from four to five millions of bushels are manufactured annually), the salt springs of Western Pennsylvania, and those of the Kanawha Valley in Virginia. The salt springs of Kentucky and of Southern Ohio are also very productive; and springs of this kind occur in many localities, being found in Utah, Colorado, New Mexico, Texas, and in other parts of the country.

Coal.—The coal-beds of the United States are more extensive than those of any other part of the world. The coal is of two kinds, viz., *anthracite* and *bituminous*. Great advances have been made during the past thirty years in the knowledge of the precise extent of these coal-fields. In 1845 it was stated at 145,000 miles. In 1866 it was known to exceed 200,000 square miles. In 1873 it was estimated by Mr. Daddow at 291,485 square miles as certain, with the strong probability of the existence of 333,000 square miles in addition in the West. If we admit the correctness of this last estimate—and judging by previous experience, it will be exceeded rather than diminished by the reality—the coal-fields of the United States cover the immense area of 624,485 square miles, or more than one-third of the largest estimate made for the coal-producing fields of the whole world. The 291,485 square miles which Mr. Daddow regards as certain are thus divided by him: New England anthracite field, in Vermont and Massachusetts, 500 square miles; Pennsylvania anthracite fields, 470; Southern Jurassic coal-fields (in Virginia and North Carolina), 220; Alleghany coal-field (extending from Lake Erie to Tuscaloosa, Ala., and occupying portions of Pennsylvania, Ohio, Virginia, West Virginia, Kentucky, Tennessee, Georgia and Alabama), 53,895; Central coal-field (extending through Indiana, Illinois and Kentucky), 40,000 square miles, of which of 6700 are in Indiana, 30,000 in Illinois, and 3700 in Kentucky; Northern coal-field, 13,000; Western coal-field (outside the Permian), 134,000; Rocky Mountain and far west Tertiary coals, 50,000. When this area is compared with that of the *productive* coal-fields of the rest of the world, it gives a result very flattering to this country until the amount produced is examined. The *productive* coal region of the United States is, as given above, nearly 300,000 square miles in extent, while that of other countries is less than 100,000—so far, that is, as is certainly known; but the annual production of coal in the United States is less than 50,000,000 tons, while Great Britain alone, with a coal-field covering only 9000 square miles, produces annually more than 100,000,000 tons. The decided difference in this relative product of coal in the two countries was noted by Sir Morton Peto, who, writing in 1866, says, "I have been rather surprised at the small quantity of coal raised—only 14,000,000 tons [the figures in the census of 1860]. The best authorities in England gave the

Americans credit for raising at least one-third more—21,000,000 tons. Undoubtedly the supply of 1860 exhibited a very considerable increase—an increase, it is said, of as much as 182 per cent.—upon the produce of 1850; but still 14,000,000 tons of coal, looking at the population and manufactures of America, appears singularly small." If Sir Morton had had more recent statistics, he would have discovered that "the best authorities in England" had a more correct idea of the situation than himself, for the production of coal in the United States during the year 1865 was 22,500,000 tons. According to the census of 1870, the statistics of coal production for the year ending June 1, 1870, are as follows: Number of collieries, 1566; hands employed under ground, 65,000; hands employed above ground, 29,854; total, 94,854; capital employed, $110,008,029; wages paid, $44,316,491. Bituminous coal mined, 17,199,415; value, $35,029,247. Anthracite coal mined, 15,664,275 tons; value, $38,495,745. Total coal mined, 32,863,690 tons; value, $73,524,994. The production of the whole country for the year 1872 is given by Mr. Daddow as 44,156,253, of which nearly one-half—22,030,263 tons—was anthracite; and of the remaining 22,126,000 tons, which consisted of bituminous coal, Pennsylvania contributed 10,817,864 tons, so that this one State produced nearly three-fourths of the whole amount. It is a remarkable fact that the anthracite coal which forms so important an item in this account comes from one of the smallest of the coal-fields, the area of which is not more than the 470 square miles given above. The State geologist computed its area at 410 square miles; and the Broad Top semi-anthracite (or semi-bituminous as some call it) amounts to only 24 square miles more, which would bring the sum-total up to 434. The limited extent of this area renders it a comparatively easy matter to obtain reliable statistics concerning anthracite coal, some of which will be given in the article on the State of Pennsylvania [see TOPOGRAPHY]. It is to be hoped that the production of coal may increase in the future even more rapidly than it has in the past. As an instance of the change effected in two years, we may note that in Wyoming Territory in 1870 there was only one colliery, which produced during the year ending June 1, 1870, 50,000 tons; while at the end of the year 1872 there were at least six collieries (belonging to two companies), which produced during that year 221,728 tons. We say "*at least* six," because this is only the return of "the two *principal* mining companies." One reason why the demand for coal has not been so great in this country as in England is that the supply of wood in many of the States, and especially in the North-west, is so abundant and cheap that the want of coal has not been much felt. Water-power has also been employed in working a great deal of the stationary machinery, and thus a great saving of fuel has been effected.

As the first use of anthracite coal as a common fuel is comparatively

recent, and was made in this country, we shall give some account of it. As early as 1769, Obadiah Gore, a blacksmith who had come from Connecticut to Wyoming Valley as one of the first settlers, succeeded in using anthracite coal in his forge. Other blacksmiths, upon learning this, began to employ the new fuel; and in 1776 coal was taken in "arks" from the Wyoming mines down the Susquehanna to the government arsenal at Carlisle, Pa., where "stone-coal" continued to be used throughout the Revolutionary war. This trade on the Susquehanna was continued after the close of the war, but only for the supply of smiths or forges. It was not until nearly forty years had elapsed from the time of Gore's first successful experiment that it was known that anthracite coal was fit for any other use. In 1808, Jesse Fell, whose nephew had been using the coal in his forge for many years, tried to burn it in a *wooden grate.* His grate was burned through, and he was thereby justified in making an iron grate, using which, he found that his experiment was equally successful, though not so destructive, as the first attempt. Judge Fell was a good Freemason. He realized the importance of his discovery; and wishing to record the event in the most solemn place and manner possible, short of the page and style of holy writ, he made the following entry upon the fly-leaf of his *Freemason's Monitor:*

"Feb. 11, of Masonry 5808.—Made the experiment of burning the common stone-coal of the valley in a grate, in a common fireplace in my house, and find it will answer the purpose of fuel, making a clearer and better fire, at less expense, than burning wood in the common way.

"Borough of Wilkes-Barré,*
February 11, 1808.

(Signed,) "Jesse Fell."

This experiment established the reputation of the new fuel in Wyoming Valley, but its progress elsewhere was slow. In 1812, Col. George Shoemaker took nine wagon-loads of coal from his mine near Pottsville to

* The present city of Wilkes-Barré, although by a clerical error its name appears in its charter of incorporation as a borough as "Wilksburg," was originally named after John Wilkes and Col. Isaac Barré. Both were friendly to this country during the Revolutionary war, but the characters of the two were essentially different. That of Wilkes, who possessed sufficient courage combined with impudence to call the king a liar, was so bad that a conviction for immorality could not blacken it. Barré was physically, morally and intellectually Wilkes' superior. Upon what principle, then, have English dictionaries of every description obscured the derivation of the name, which is unique, by giving it as "Wilkesbarre"? If a town were named after Smith and Jones, would the name be written *Smithjones?* The *Freemason's Monitor,* containing the above entry, is in the collection of the Wyoming Historical and Geological Society at Wilkes-Barré, which society originated in a meeting held upon an anniversary of the event recorded, and in the very room where the "stone-coal" was thus first burned.

Philadelphia. With great difficulty he sold two loads for the cost of transportation, and it was almost equally difficult to induce blacksmiths and others to take the remainder either as a gift or for a trifle bearing no comparison with the expense and trouble to which he had been subjected. The latter class of customers did not know how to use their gift or purchase, and obtained a writ from the city authorities for his arrest as an impostor and swindler. He was obliged to beat a hasty retreat, and narrowly escaped capture and the penalty of his crime of attempting to impose *rocks* upon his customers as coal. In the mean time one of his first customers, who was a proprietor of a nail and wire factory, was attempting to give a fair trial to the newly-acquired combustible. With several of his men, he worked a whole morning over one of his furnaces. They *raked* their fire, *poked* it, *stirred* it up and blew *upon the surface through open furnace-doors* with great energy, but in vain. When dinner-time came *they shut the furnace-doors* and went away, wearied and disgusted with their futile efforts to make use of what is, at present, the main dependence of the furnaces of Eastern Pennsylvania. When they returned they found the furnace-doors red-hot and the whole furnace in danger of being melted by a heat which it had not as yet experienced. The anthracite problem was solved!

Iron.—The ore of this metal is found in one or more of its species in the States of Alabama, Arkansas, Connecticut, Delaware, Georgia, Illinois, Indiana, Kentucky, Ohio, Maine, Maryland, Massachusetts, Michigan, Missouri, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Tennessee, Vermont, Virginia, West Virginia and Wisconsin, and in the Territory of Colorado. The following particulars with reference to the most important of these regions are mainly condensed from Wiley's *Iron Trade Manual*. The leading State in the possession of ore is Missouri. Iron Mountain [see MISSOURI, in TOPOGRAPHY] is thought to be the largest single deposit of ore in the known world. The ores of Pilot Knob, Shepherd Mountain, Cedar Hill and Buford Mountain are next in interest, and present curious features to the geologist. Ore lands in newer regions could still be purchased in 1874 for from $5 to $50 per acre, according to locality, contiguity to a railroad and amount of development. The Iron Mountain ore may be taken as a type of all the Missouri specular ores. It is nearly pure peroxide, containing about 70 per cent. of metallic ore, and is nearly free from mechanical admixture of foreign matter; color, bluish black to steel gray. No ore with active magnetism, constituting a natural magnet and attracting iron filings, is found on the mountain. The Pilot Knob ore is slightly peculiar; color, steel gray to pearl gray, with a marked tint of sky-blue. Its structure is crystalline to granular, with a very fine grain. None of these ores affect a compass-needle, though all are slightly attracted by a magnet when ground fine. The ore from Shepherd Moun-

tain is a little more like a magnetite than any other ore found in Missouri, but in the main it is a specular ore, very similar to that of Iron Mountain. Its magnetic qualities are much more pronounced than those of either of the ores above described, many specimens being strong natural magnets. The ore is very uniform in chemical composition, very rich in metallic iron and almost entirely free from phosphorus and sulphur. The ores from Pilot Knob, Shepherd Mountain and Cedar Mountain are mixed for furnace uses and make a nearly neutral iron, with a slightly redshort tendency, that from Shepherd Mountain being a black oxide and that of Pilot Knob a blue specular. In 1872, 11,000 tons of this ore mixture made 6300 tons of pig-iron, showing its richness in metallic iron. The development of these ores has been going on for some years, and the total shipments from the State have reached some 400,000 tons annually. Unfortunately, Missouri does not possess the large coal-fields of some regions, but the coal found in Illinois is now successfully coked and furnishes good fuel for blast-furnace purposes. Charcoal timber, in sufficient quantity for the necessities of many years to come, is found in the State. Though Massachusetts is not one of the leading States in iron mining, the following extract from Dr. James Thatcher's *Observations on Iron Ores*, published in 1804, may prove of interest: "There are in the county of Plymouth several ponds in which are found copious beds of iron ore. The generating principle and process of nature in producing iron ore in these ponds affords a phenomenon which will probably elude the assiduity of philosophical research. *The period of its growth* is supposed to be about twenty-five years, and it is found in various depths of water from 2 to 20 feet. A man accustomed to the employment, being in a small boat with an instrument similar to a pair of oyster tongs, can raise from its watery bed about half a ton of this ore in a day." Ore had been taken from these ponds for sixty years, and from another similar deposit, discovered in 1751, 3000 tons were taken in a few years, which yielded the not very large proportion of "25 per cent. of excellent iron," furnishing materials for a considerable quantity of the cannon-shot used during the Revolutionary war. Michigan contains the "Lake Superior Iron Region," which, though probably not so rich as the deposits in Missouri, is being more extensively worked and is giving a larger annual yield. The Lake Superior ore was first submitted to a thorough test in a blast-furnace in 1854, since which time the shipments of ore from this quarter have grown from nothing to 1,000,000 tons annually. Only two general classes of ores have as yet been found in this region—the hematites or sesquioxides, containing two equivalents of iron to three of oxygen, and yielding when absolutely pure seventy per cent. of metallic iron, and the magnetic ores, or proto-sesquioxides, consisting of three equivalents of iron to four of oxygen, which yield 72.41 per cent. of metallic iron when equally pure. There are, however, a number of

varieties belonging to each class; thus, under the general name of hematite are found the "specular," "specular slate," "slate," "massive" and other forms; also the soft red and brown ores containing water, to which alone the name of "hematite" is technically applied in this region. Among the magnetic ores the difference is chiefly one of structure; thus there are coarse- and fine-grained and steely ores, differing merely in hardness and fusibility. New York has been celebrated for the variety and quality of various ores in very numerous localities, but especially for the magnetic and specular ores of the Lake Champlain region, which have supplied not only her own furnaces, but those of other States, and have furnished to all the rolling-mills east of the Alleghanies the requisite materials for fettling or lining the plates of the puddling-furnaces. So important have these ores become to the rolling-mill owners of the East that they are contracted for at the opening of each year, and orders not in the hands of the ore-bed owners by a certain date receive no attention. The shipments in 1872 from this quarter amounted to 375,000 tons. It is a remarkable instance of the slowness with which the value of mineral deposits is sometimes realized that in one place in this region where the ore is mixed with phosphate of lime works were once built for the manufacture of this fertilizer, to the neglect of the iron ore. Of Pennsylvania it has been said: "Pennsylvania has been frequently spoken of as the greatest iron-producing State of the Union, and in figures of iron manufacture she is pre-eminent; but this is due rather to the wealth in fuel of this State and to the patient industry of her people than to any mineral abundance. Indeed, there is scarcely one of the States noted for iron ores which does not surpass Pennsylvania in ore wealth, and, be it added, not one of them that has made the use of what she possesses that Pennsylvania has. In magnetic ores New York, New Jersey, Virginia, North Carolina, Missouri and Michigan far surpass her. Massachusetts, Vermont, Virginia and Tennessee far exceed her in brown hematites. The fossiliferous ores of Pennsylvania are not to be mentioned with those of Alabama; the carbonates cannot compare with those of Ohio, Kentucky and West Virginia; and yet Pennsylvania produces more pig-iron than all the other States conjoined. It has been patient industry, hard work, frugality and plenty of coal that have made Pennsylvania the great iron-making State she is." The magnetic ores of New York and New Jersey almost disappear in Pennsylvania, but some magnetites were formerly worked near Easton, mixed with quartz and felspar. At Bethlehem are small quantities of magnetites, and also just south of Allentown; and south of this region, in Colebrookdale, they are found in the Mount Pleasant mines. The great Cornwall mine of Lebanon county is to the furnaces of Pennsylvania what the Lake Champlain deposits are to those of New York, though in a lesser degree. Brown hematite ores are found much more generally in Pennsylvania than magnetic ores, and form

the principal dependence of the very numerous furnaces of their location, which is general throughout Eastern, South-eastern and Middle Pennsylvania. In Montgomery county, at Spring Mill, the belt of ore, about a mile wide, runs north of Barren Hill, on the east side of the Schuylkill, and from here toward Norristown is considerably worked. In Eastern Pennsylvania brown hematites are worked in Berks, Lehigh and Northampton counties, near Bethlehem, Allentown, Emaus and Millerstown. Between the Lehigh and Schuylkill Rivers are the ores which furnish the Catasauqua, Hokendauqua and Easton group of furnaces with hematites. These beds are numerous, the quality is good and the supply is abundant, and with their contiguity to the anthracite coal-field and the neighboring magnetites of New Jersey have made the Lehigh Valley the great iron-producing region it is. Mr. Dunlap thus sums up the situation: "While Pennsylvania cannot boast of the extremely rich ores of Northern New York, or of Michigan, Missouri or the South-west, there is abundance of good workable ore, sufficient in quality and abundance to thoroughly sustain the very extensive iron industry conducted. Constant discoveries of ores are made in all sections of the State, and the increasing population and demand for ores clearly indicate the necessity of a new geological survey." The production of iron and steel in the United States, in 1872, was, in tons, as follows: Iron and steel rails, 941,922; other rolled and hammered iron, 1,100,000; forges and bloomeries, 58,000; cast-steel, 32,000; Bessemer steel, 110,500; Martin steel, 3000; pig-iron, 2,830,070. Though a panic caused a stagnation of business during the last quarter of 1873, which bore with special weight upon this industry, a few of the figures for the whole year show an increase upon the amounts just given. The quantity of Bessemer steel produced rose to 140,000 tons, a portion of which was converted into 120,000 tons of rails. If this is not included in the return of 850,000 tons of "railroad iron," the quantity of iron and steel rails for 1873 was 970,000 tons. Other rolled iron amounted to 980,000 tons. The quantity of pig-iron fell to 2,695,434 tons, and that of cast-steel to 28,000 tons. The importation of "railroad bars or rails" has been decreasing during the past four years, as is shown by the following figures: 1871, 512,277 tons (of 2000 pounds); 1872, 472,760 tons; 1873, 240,505 tons; 1874, 20,380 tons. The imports of pig-iron for the same years were: 1871, 171,627 tons (of 2000 pounds); 1872, 204,517 tons; 1873, 277,283 tons; 1874, 103,087 tons.

Petroleum.—Rock oil (popularly but incorrectly termed "coal oil") is found in Pennsylvania, Ohio and West Virginia. The production of this valuable commodity in large quantities is a business of recent origin and growth. The ancient method of obtaining it is thus given by Eaton: "A point was selected where the oil appeared to bubble up most freely, when a pit was excavated to the depth of two or three feet. Sometimes this pit was rudely walled up, sometimes not. Sometimes it was near the edge of

the water, on the bank of the stream, sometimes in the bed of the stream itself, advantage being taken of a time of low water. In these pits the oil and water would collect together until a stratum of the former would form upon the surface of the latter, when a coarse blanket or piece of flannel was thrown in. This blanket soon became saturated with oil, but rejected the water. The blanket was then taken out, wrung into a tub or barrel, and the operation was repeated." The product was figuratively "a drug in the market," and literally was used only as a drug. "Most families through the country kept a supply for their own use, yet for all ordinary purposes a pint bottle was sufficient for a year's consumption. Every good housewife was supposed to have a small store of Seneca Oil, as it was popularly called, laid by in case of accident, for the medication of cuts, bruises and burns. It was carried abroad in small bottles to distant neighborhoods, until eventually it was purchased by the druggists, put up in small vials and labelled sometimes 'British Oil,' sometimes 'American Oil,' or 'Rock Oil,' according to the popularity of the terms at the time or place." The first shipment of petroleum to Pittsburg was made at some time near the beginning of the present century by a Mr. Cary, whose cargo consisted of two five-gallon kegs, slung one on each side of a horse. In 1865 more than fifty thousand times this quantity was the average shipment for a single day during the busiest part of the season. The oil trade of that day was liable to suffer terrible fluctuations. A flatboatman or raftsman would occasionally glut the market with a barrel or two, brought down at once. The demand would then entirely cease until this large surplus was consumed. At a later period the business became a monopoly. Gen. Samuel Hays purchased all the oil produced in the country (the highest annual yield being sixteen barrels) and sold it at Pittsburg for about one dollar per gallon. The gross receipts of this pioneer among American monopolists during that best year were nearly *six hundred and forty dollars.* Even this immense sum (from which, to ascertain his profits, the prime cost and expenses should be deducted) was not sufficient to awaken either envy or competition. The presence of large quantities of petroleum was frequently made evident when wells for salt water were bored, and even when ordinary wells were dug; but the value of the fluid was not known until the manufacture of genuine "coal oil" out of cannel coal began and it was discovered that the artificial oil thus produced was almost identical with the natural oil which had hitherto served as a mere liniment. In 1854 several barrels of petroleum were sent to Professor Silliman of Yale College for analysis. He made a report which Eveleth & Bissel (who had purchased the "territory" where the principal oil-springs were found) published in 1855. In this year the first oil company, "The Pennsylvania Rock Oil Company," was organized, with Professor Silliman as president. Until 1857 oil was obtained by digging pits and ditches and pumping the oil and water into

vats. The substitution of artesian wells for this tedious process was then decided upon. The first efforts were unsuccessful, but Col. E. L. Drake, who acted as agent and superintendent, was unremitting in his attempts, and on the 28th of August, 1859, the first oil well in America was struck, near Titusville, Pa. It yielded ten barrels per day with a hand-pump, and when a larger pump, worked by an engine, was attached, the yield rose to forty barrels. As oil was then worth one dollar per gallon, or forty dollars per barrel, this yield was of considerable value. Speculators were attracted, other wells were bored and many were for a while "flowing wells." One well yielded for a time more than 3000 barrels per day; and in this case and others the oil came up more rapidly than it could be provided for, so that much of it ran away and was wasted. The "oil excitement" culminated in 1864–5, when 1100 companies were formed, with a nominal aggregate capital of $600,000,000, though only about 15 per cent. of this amount, or $90,000,000, was really paid in, and even this sum so far exceeded the quantity of capital required that some of it received but a poor return. Since that time, though local "excitements" occasionally occur, the oil business has settled down upon a comparatively legitimate and solid basis. The use of powerful "torpedoes" (the main ingredient in the explosive material of which is nitro-glycerine) has greatly improved the chances of obtaining oil and of retaining the productive power of a well. These valuable auxiliaries are put down into the wells and exploded, the result frequently being the tapping of hitherto inaccessible deposits of oil. Statistics of the production of petroleum in Western Pennsylvania and of the exports of this article from the United States in various years are as follows: 1859, production, 82,000 barrels; 1860, 500,000; 1861, 2,113,000; 1862, 3,056,000; 1863, 2,611,000; 1864, 2,116,000; 1865, 2,497,000; 1866, 3,597,000; 1867, 3,347,000; 1868, 3,583,186; daily average, 9811 barrels; 1869, 4,210,720; daily average, 11,528; 1870, 5,673,198; daily average, 15,543; 1871, 5,715,900; daily average, 15,660; 1872, 6,531,675; daily average, 17,895; 1873, 7,878,629; daily average, 21,568. These figures have been given in barrels (containing 40 gallons), but the exports are reckoned by gallons, and since 1863 have been as follows: 1863, 28,250,721; 1864, 31,872,972; 1865, 29,805,563; 1866, 67,430,451; 1867, 67,052,029; 1868, 99,281,750; 1869, 102,808,604; 1870, 140,761,931; 1871, 156,475,469; 1872, 154,064,904; 1873, 238,008,187; year ending June 30, 1874, 245,978,684. The greater part of these exports consisted of refined oil, the proportions during the last year mentioned being as follows: Mineral oil, crude (including all natural oils without regard to gravity), 17,776,419; mineral oil (refined or manufactured), naphthas (benzine, gasoline, etc.), 9,737,457; illuminating oil, 217,220,504; lubricating (heavy, paraffine, etc.), 1,244,305 gallons.

Gold and Silver.—Gold has been obtained for many years from a

metalliferous belt which extends along the eastern base of the Alleghany Mountains from Northern New England to Georgia, the southern portion being the most productive. In North Carolina the gold-fields extend over an area of more than 100 square miles. Native gold began to appear in the mint at Philadelphia in 1824, and the receipts increased rapidly, so that in a few years it constituted the principal supply of this metal. The first mint deposits from South Carolina were $3500, in 1829; from Virginia, $2500 in the same year; and from Georgia, $212,000 in 1830. The production soon became so great that branch mints were established at Charlotte, N. C., and at Dahlonega, Ga. [see COINS AND CURRENCY]. The total amount of Southern gold deposited at the mints and assay-offices of the United States from the opening of the mines to June 30, 1874, was $1,633,776.66 from Virginia, $10,090,655.98 from North Carolina, $1,379,077.47 from South Carolina, $7,298,746.92 from Georgia, $79,173.56 from Tennessee and $212,087.12 from Alabama; total, $20,503,617.71. Only a small portion of this, however, has been deposited in recent times, as the "placer" deposits and many of the veins in the South were abandoned when the discovery of gold in California was announced. The deposits from the Southern States for the fiscal year ending June 30, 1874, amounted to only $141,507.04, divided as follows: Virginia, $2163.88; North Carolina, $107,070.10; South Carolina, $896.70; Georgia, $30,962.16; Tennessee, $154.87; Alabama, $259.33. The main source of the supply of this precious metal is found west of the Rocky Mountains, especially in California. On the 21st of December, 1846, Mr. L. W. Sloat read a paper before the Lyceum of Natural History of New York, entitled *The Mines of Upper California.* In this essay he says: "At San Fernando, near San Pedro, by washing the sand in a plate any person can obtain from one to five dollars per day of gold, which brings seventeen dollars per ounce. The gold has been gathered for two or three years, *although but few, at least of the native Californians, have the patience to look for it.* There is not the least doubt in my mind that gold, silver, quicksilver, copper, lead, sulphur, asphaltum and coal are to be found in that region. . . . The Indians have always said that there are mines, but refused to give their locality, and the Californians [of Spanish descent] did not choose, or have been too lazy, to look for them." It was more than a year after the date just given when the discovery of gold in its abundance was made. James W. Marshall, who was at the time superintending the construction of a saw-mill for Capt. Sutter (on the American Fork of the Sacramento, near the town of Coloma, in El Dorado county), saw some glittering particles in a heap of mud and sand which had been washed together by the river (Feb. 9, 1848). Another account attributes the discovery to his little daughter, who "picked up in the race a lump of gold, and showed it to her father as a pretty stone." Trembling with excitement, Marshall hurried to his employer and

told his story. Capt. Sutter at first thought that it was a fiction and that the narrator was insane. He therefore, as he afterward confessed, kept a sharp eye upon his loaded rifle while this astounding disclosure was made; but when Marshall threw an ounce or two of the shining dust upon the table before him, his doubts were dispelled. The two agreed to keep the matter secret and quietly share the golden harvest between them; but

"The best-laid plans of mice and men
Gang aft aglee."

As they went carefully over the ground, gloating with eager gestures and ejaculations of delight over their new-found treasures, they awakened the suspicions of a Mormon laborer employed in the neighborhood, who closely watched them, appointed himself a committee of one to investigate the cause of their excitement, and speedily became as wise as the unwary Sutter and Marshall. Having slight motive for secresy, he spread the intelligence. The result is elsewhere given [see CALIFORNIA in TOPOGRAPHY, p. 217]. Down to 1874, inclusive—*i. e.*, during a period of 27 years —the gold mines of California yielded more than $1,000,000,000. The California gold-field, which extends almost continuously over seven degrees of latitude, covering with its longest axis a distance of five hundred miles, includes an area larger than the State of New York. In no portion of this territory have mines been completely exhausted. The sands of the sea-beach from Coos Bay for 200 miles south are worked with profit, and may be termed "the gold coast of the United States." The total amount of gold deposited at the United States mints and assay-offices up to June 30, 1874, from California, was $648,411,230.56. The gold deposits from Colorado up to the same date amounted to $21,741,203.66, while those from Montana were worth $36,640,618.66; from Idaho, $19,417,494.53; from Oregon, $12,314,071.10; and from Nevada, $3,551,751.63. Total deposits of domestic gold since the organization of the mints, $871,265,-517.05. The existence of gold in the Black Hills is no longer doubted [see GENERAL DESCRIPTION, page 154]. An Associated Press despatch of Aug. 2, 1875, says: "The gold region of the Black Hills comprises about 1000 square miles, and Professor Jennings defines its northern limit as lying between Rapid and Box Elder Creeks. The new diggings on Spring Creek have attracted hundreds of miners from other gulches and from outside the Black Hills." Arrangements are being made by the government to purchase the auriferous district from the Indians, and pending the negotiation many miners entered the lands in question; but active measures being taken by the government to protect this region from intrusion, it was decided to abandon it for the present. A despatch of August 10 says that "there were fifteen hundred miners in the region who were preparing to leave." *Silver.*—This metal is found in comparatively pure

ores, also in combination with copper, lead and other metals, in various parts of the United States. The deposits at the mints and assay-offices up to June 30, 1874, amounted to $43,381,419.40. An idea of the increase in the production of this precious metal can be gathered from the fact that very nearly one-fourth of this total amount ($10,822,658.16) was deposited during the *year* ending June 30, 1874, this quantity being divided, according to source, as follows: California, $44,345.89; Colorado, $1,391,856.32; Idaho, $17,323.49; Montana, $16,898.10; Nebraska, $50,455.37; Nevada, $4,230,765.36; New Mexico, $77,880.70; North Carolina, $46.67; Utah, $1,764,937.86; Lake Superior, $353,766.19. The remainder of this amount came under the heads of "refined silver," "contained in gold," "parted from gold" and "other sources." The receipts of American silver at the mints, etc., during the year ending June 30, 1861, amounted to only $600,000. As a much larger proportion of silver is used for plate and other manufactured articles than that of gold, the deposits at the mint give only an approximation (and sometimes a poor one) to the amount actually produced. In California, for instance, many veins of lead ore combined with silver were discovered. The proportion of silver was in some cases very large; but as the ores were in some places very complex, and the requisite metallurgical works and skill for reducing them were lacking in this country, they were transported to the Pacific coast and shipped to England *viâ* New York. As many of them contained silver to the amount of $2000 per ton, the cost of transportation was not a large item in comparison with their value. In 1840 the Washington mine, Davidson county, N. C., which had attracted attention on account of its being the only lead mine which up to that time had produced much silver, excited expectations of great richness at lower depths by a display of native silver in arborescent forms, and disseminated through the magnesian limestone in a very striking manner. This expectation was not realized so far as the discovery of pure silver ore was concerned, though the lead was found so rich that in 1844 $24,009 of silver and $7253 of gold were separated from 160,000 pounds of lead, an average of 240 ounces of auriferous silver to 2000 pounds. In 1851 the proportion of auriferous silver ran as high as 279 ounces to 2000 pounds. This was, however, but little more than one-third of the proportion found in the California ore above mentioned.

Copper.—The number of copper mines in the United States in 1870 is given at 40, divided as follows: Michigan, 27; Arizona, 2; Maryland, 2; Pennsylvania, 2; Vermont, 2; Tennessee, 2; Nevada, 1; North Carolina, 1; Virginia, 1. The number of hands employed was 5404; invested capital, $7,789,374; value of product, $5,201,302, of which Michigan produced 82.91 per cent.; Vermont, 6.89 per cent.; and Tennessee, 5.96 per cent., making for the three States 95.76 per cent., or more than nineteen-twentieths of the total value. The leading copper mines in this country are

those on the southern shore of Lake Superior. These mines were worked in some places by the predecessors of the Indians on this continent. A large mass of ore, detached, and some stone tools were found by the first white visitors to one of the mines, and these were not left there by the Indians, who were ignorant of the art of mining. The working of these deposits by white people began in 1845, and it is stated that between that time and 1858 the entire production of this region was 18,954 tons of ore, producing 13,955 tons of ingots, worth $9,000,000. From that date there has been a marked increase in the production, as is shown by the following table of the products of copper mining in the Upper Peninsula of Michigan:

Year.	Ore, Tons.	Ingots, Tons.	Value.
To 1858	18,954	13,955	$9,000,000
1858	4,100	3,500	1,886,000
1859	4,200	3,500	1,890,000
1860	6,000	4,800	2,610,000
1861	7,500	6,000	3,337,500
1862	9,962	8,000	3,402,000
1863	8,548	6,500	4,420,000
1864	8,472	6,500	6,110,000
1865	10,791	7,000	5,145,000
1866	10,376	7,000	4,760,000
1867	11,735	8,200	4,140,000
1868	13,049	9,985	4,592,000
1869	15,288	12,200	5,368,000
1870	16,183	12,946	5,696,240
1871	16,071	12,857	6,171,360
1872	15,166	12,132	7,774,720
1873	18,688	14,910	8,200,500
1874	21,729	17,383	7,996,180
Total	206,761	167,368	$92,500,000

It will be seen, upon examining this table, that the production in 1874 exceeded that of the whole twelve years preceding 1858; also that the processes for extracting pure copper have been so much improved that in 1873 18,688 tons of ore gave 955 tons more of pure copper than were afforded by 18,954 tons of ore during the twelve years mentioned. In 1872 the Calumet and Hecla mine alone yielded 8000 tons of fine copper, about one-tenth of the entire product of the globe. A single sheet of copper was found in the Minnesota mine which was computed to weigh at least 250 tons. There is a copper region of great importance in adjacent parts of Virginia, North Carolina, Tennessee and Georgia, in which there are numerous mines which have been worked in an imperfect manner. Professor Hunt says of it: "With the present augmented price of copper and with the aid of improved processes for the extraction of the metal from its ores,

this region may become a second Cornwall." Deposits of copper ore were formerly worked to a considerable extent in New Jersey and Connecticut, and recently rich veins of this ore have been opened iu Chester county, Pa.

Lead.—The ore of this metal is found in Iowa, Wisconsin, Illinois, Missouri, New Hampshire, Massachusetts, New York, Pennsylvania, Virginia, Tennessee, North Carolina and Kentucky. The most importaut lead deposits in the United States are in the Mississippi Valley. The Upper Mines are within the adjoiniug States of Wiscousin, Illinois and Iowa. The area of this region is 4000 square miles, of which 2200 square miles, or 55 per cent., lie in Wisconsiu; but the most productive portion is iu Iowa and Illinois. The first extensive miniug began in 1826. In 1829 the annual production was 5000 tons; in 1839 it had risen to 10,000 tons; and in 1845 it reached its maximum, amounting to nearly 25,000 tons. Since that time it has greatly fallen off, and it is difficult, or rather impossible, to obtain trustworthy figures with relation to it. The lead deposits of Missouri have been divided by mineralogists into three districts, the south-west, the middle aud the south-east, the last being the most important, covering an area of about 500 square miles. In 1811 Miue Shibboleth, in this region, produced 1562½ tons of lead from 2500 tons of ore. In 1816 the average annual product of Mine à Burton and the Potosi diggings for the preceding eighteeu years was estimated at over 250 tons. From 1834 to 1837 the yearly production of Mine La Motte was 518 tons. The State geologist makes the annual product of all the lead mines in Missouri for the 14 years ending with 1854, inclusive, more than 1916 tons. There are numerous deposits of lead ore in the Atlantic States, but they have not beeu very exteusively worked. Some of them are highly argentiferous; ore from the Shelburne Mine, iu New Hampshire, giving 84 ouuces of pure silver to the ton of lead, and some from the Warren Mine, iu the same State, yielding 60 to 70 ouuces per tou. Shipments of ore made in colonial times to England from the neighborhood of Middletown, Conn., yielded from 25 to 75 ounces per ton, and contrary to the usual rule, that portion of the ore which was fine grained, and was consequently expected to give the largest amount of silver, furnished the 25 ounces, while the 75 ounces per ton was obtained from the coarsely cubical ore. The imports of lead iuto the United States during the fiscal year endiug Juue 30, 1873, were 71,371,692 pounds (35,685 tons of 2000 pounds), and for the year ending June 30, 1874, 43,513,017 pounds (21,755 tons), showing a decrease of nearly 40 per cent.

Zinc.—Zinc ores have been found in Pennsylvania, New Jersey, Missouri, North Carolina, Arkansas, Wisconsin, Tennessee aud in several other States. The first zinc was made in this couutry in 1838, for the brass standard weights and measures ordered by Congress. A block from New Jersey weighing 16,400 pounds was exhibited at the World's Fair in Lon-

don, in 1851. It was estimated, several years since, that of the entire product of the world Prussia yields 58 per cent., Belgium 27, Russia 7 and the United States 3. The proportion to be credited to this country is now undoubtedly larger. Franklinite, or the red oxide, is obtained near Franklin and Sparta, in New Jersey; and both calamine and blende are worked at Friedensville, near Bethlehem, Pa., the works of the Lehigh Zinc Company being at the latter place. This company manufactured about 1700 tons of white oxide of zinc, an equal quantity of spelter, and rolled about 1000 tons of sheet zinc, during the year ending April 1, 1874. The sheet-zinc made from Pennsylvania ores is deemed fully equal to the famous brand *La Vielle Montagne*, of France, some considering it even better, on account of its freedom from arsenic and iron. The great difficulty in competing with French sheet-zinc arose from an ignorance of the secret of the polishing process. The very simplicity of this operation baffled research, as it is performed by passing several heated sheets through iron rollers, when by mutual friction they polish each other. The purity, smoothness of surface and durability of this zinc have led to its adoption as the material for the cartridge-cases used by the Russian and Turkish governments.

Quicksilver.—The quicksilver mines of California are elsewhere mentioned [see CALIFORNIA, in TOPOGRAPHY]. According to the reports of the Paris Exposition, California yielded, in 1867, 3,960,000 pounds out of a total for all countries of 7,083,120 pounds. The product of the New Almaden mine for 21¼ years, ending with December 31, 1873, was 573,150 flasks (containing 76½ pounds each), or 43,845,975 pounds. It is said that the Old Almaden mine in Spain controlled the Chinese market until a few years ago, when the manager of the New Almaden shipped 10,000 flasks to Hong Kong, and sold them so far below cost as to drive the European quicksilver back to Spain. California then supplied China; but Spain, by the same tactics, obtained the control of the London market. In 1869, for instance, the exports of quicksilver from the United States to England amounted to only 152,924 pounds, while those to China amounted to 824,052 pounds. The total exports for the year 1869 were 2,152,499 pounds, Mexico taking even more than China (834,776 pounds). Since that time the production has fallen away, the yield for 1873 being little more than 2,000,000 pounds; and during the year ending June 30, 1873, foreign countries took only 714,783 pounds of American quicksilver, none of this amount going to England. In the year ending June 30, 1874, the quantity exported was 501,389 pounds.

NOTE.—The agricultural products are treated elsewhere [see AMERICAN AGRICULTURE], and the remaining minor topics, which usually come under the head of Physical Geography, are treated in the articles on the several States [see TOPOGRAPHY, p. 205 *et seq.*] as fully as space will allow.—ED. U. S. CENTENNIAL GAZETTEER AND GUIDE.

RESOURCES AND PROSPECTS OF THE UNITED STATES.

BEFORE treating of the several States separately, it seems proper, as we have just been taking a general view of the physical features of this country, to say a few words concerning the resources and prospects of the United States. A work upon this subject was written by Sir Morton Peto, and published in 1866. The kindly spirit in which he wrote, the special facilities afforded him while he was in America collecting information, the skill with which he has arranged his materials, combine to render the work of Sir Morton very valuable, even at the present day, when his statistics (a few of which were somewhat superannuated when he wrote) have become almost too stale for reproduction, except for comparison with the later figures of the years which have elapsed since his visit to America, in 1865. Americans are so busy, so thoroughly occupied with the interests which demand immediate attention, so little given to day-dreaming, that it is probable that few among them have any adequate conception of the vastness of the resources of their favored land. Vague general statements, which form the staple of the Fourth of July oration or the popular lecture, are couched in language so stereotyped that a great part of their effect is lost; and though they are acknowledged as truisms, the frequency with which they are heard, in nearly the same form of words, makes them seem almost like vain repetitions. The more specific, however, the information obtained, the more evident becomes the fact that statements apparently bombastic—assertions which seemed at first to be the offspring of an overweening national pride—have been below rather than above the mark. A comparison of some of the figures given for the United States with those for Europe, or for separate countries of the latter, gives a very favorable showing for the young republic. In the matter of territory, for instance, the area of Europe is 3,600,000 square miles, while that of the United States is 3,603,884 square miles. The area of the United Kingdom of Great Britain (83,827) and Ireland (28,800) is 112,627 square miles; that of France (including Corsica), 204,711 square miles. A larger amount of land (140,000,000 acres, or 218,750 square miles) than either of these has been given away to the States and Territories by the various national land-grants for the establishment and maintenance of public schools [see AMER-

ican Education, page 498]. Texas (area 274,356 square miles) is larger than Spain (area 196,031 square miles); California (area 188,981 square miles) contains more territory than the kingdom of Italy (area 114,409 square miles); our States match in size the countries of Europe; our country is larger than that "grand division" of the globe. Sir Morton Peto* awards the United States this superiority even when (by including lakes and rivers) he made the area of this country 3,250,000 square miles; and the addition of Alaska puts it beyond question, even if the larger estimate of 3,600,000 square miles be the area of Europe. This territory, with the exception of Alaska, is compact and contiguous. For the most part it is united by lines of communication which consist of lakes, rivers, canals and telegraphs. By the settlement of California and Oregon the country has the great advantage of fronting the two great oceans, the Atlantic and Pacific. Of this territory the public lands embrace an area of nearly 3,000,000 square miles. The exact figures on the 30th of June, 1874, were 2,867,185 square miles, or 1,834,998,400 acres, of which 649,393,052 had been surveyed up to June 30, 1874, leaving 1,185,605,348. In 1867 the aggregate area, according to Hawes, was 1,446,716,072 acres, of which 485,311,778 acres, or about one-third, had been surveyed up to July 1st of that year. The increase is owing to the addition of Alaska to the public domain—an addition amounting to 577,390 square miles, or 369,529,600 acres. The lands are surveyed by the government and divided into uniform rectangular tracts, six miles square, called "*townships*," each township being subdivided into thirty-six "*sections*" one mile square, containing 640 acres each, and each section into "*quarter sections*" of 160 acres each, which are set apart for homesteads. By the "system of squares" every section and quarter section is bounded by lines running due north and south (as far as the convergency of the meridians, or their coming nearer together as they are extended northward, will permit), crossed by other lines running east and west. As the country is filled up and settled new surveys are made, and it is doubtless one of the greatest attractions of the United States that they possess so great an expanse of territory that it will be many years before the price of land in the West is raised by immigration, however great may be the influx of population. The application of industry to the cultivation of the soil will be for a long time the principal reason for an increase in the value of land, and such increase will be the certain and just reward for the labor of the industrious immigrant. There is no description of produce, European or tropical, which may not be raised in some part of this territory. Every part of the country produces wealth. The Western and Pacific States afford abundant crops of the two great cereals, wheat and

* We acknowledge here, once for all, our indebtedness to this author, and shall continue to borrow freely from his work without further reference.—Ed. U. S. Centennial Gazetteer and Guide.

Indian corn, with the additional advantage that the first of these is gathered in the summer and the other in the fall; thus affording a double harvest to the farmer. The Southern States grow sugar, rice, tobacco and corn. The agricultural resources have been fully dwelt upon elsewhere, both generally [see AMERICAN AGRICULTURE] and particularly, in connection with the separate articles on the several States and Territories [see TOPOGRAPHY]. The mineral resources have also been treated both generally [see PHYSICAL GEOGRAPHY] and in detail [see TOPOGRAPHY]. Every portion of this territory possesses some special advantage. Even in many places where the soil is barren that soil consists of valuable chemicals, prepared (in a nearly pure form) in Nature's laboratory, or it covers metals worth more than the aggregate crops for many years gathered from an equal extent of the most fertile soil, or it affords some other yield which makes it of value to the man who intelligently endeavors to ascertain and to develop its capabilities. This leads us to speak of another resource of this country—viz., the intelligent industry of the people. The vast increase made during the past thirty years in the annual value of manufactured articles [see AMERICAN MANUFACTURES] is a proof that this resource is one to be relied upon as an important auxiliary to the advance of this nation in wealth, in comfort and in the ability to sustain a large population. The opinion of Sir Morton Peto (and of other writers who could not possibly look upon the question disinterestedly) that it would be the best policy for the people of the United States to devote their attention exclusively to agriculture, and to entirely depend upon England and other foreign countries for supplies of manufactured articles,—this opinion, we say, however pleasant and plausible it may appear to those who desire to furnish this country with all the necessaries of life except food, will not meet with the approval of the true American who desires his country to take a leading position among the nations of the world. To follow out this policy, to permit our almost boundless resources of coal, of iron, of water-power, of the industry of a free people, to slumber unused, would be to scorn the gifts of a bountiful Providence which has richly showered upon this favored nation not only the blessings pronounced by the patriarchs upon their posterity—"the dew of heaven, the fatness of the earth and plenty of corn and wine"—but has also given "a land whose stones are iron and out of whose hills" may be dug not only brass (or its ingredients, copper and zinc), but more gold and silver than the famed Ophir ever produced. Nor is it any kindness to the American farmer to support a doctrine which would make all men farmers, would cause an overproduction of all agricultural products, and would leave the unfortunate agriculturist entirely at the mercy of foreign markets for the disposal of the immense surplus which would be left were every man to become a farmer. It would, doubtless, be a comfortable state of affairs for all the foreign

nations requiring our breadstuffs or other products of the farm. They would be able to take their choice of the best, to name their own price and to repay the American farmer with a small portion of the raw material taken from this country to be worked up, and to have its value thereby enhanced, for the benefit of the foreign nation or nations above mentioned. A true friend of the farmer (if the zeal and energy with which he has collected statistics may be considered a proof of his right to this title), the Statistician of the Department of Agriculture, expresses the hope (in an address the concluding words of which may be found at the end of the article on AMERICAN AGRICULTURE) that the day may be hastened "when 25 per cent. of our people shall furnish a better and more varied agricultural supply than is now obtained by the 47 per cent. engaged in agriculture," and "when the 21 per cent. now engaged in mining, manufacturing and the mechanic arts may become 42." This is a hope the fulfilment of which would be a benefit to the agriculturist as well as to the miner, the manufacturer and the mechanic.

The resources of the United States have always been found equal to their necessities. There came a time not long since when those resources were sorely tried, when brother warred against brother, when a land which had for a time been rent with civil feud was drenched with fraternal blood. Another country under such circumstances might have been irreparably ruined. A monarchy so situated would have probably become a prey to anarchy and confusion. We have, however, to deal with the important question, How did the resources of the country bear the drain put upon them by the demands of the four years of war? The answer is one so flattering to national pride that we prefer to give it in the words of one whose opinion with reference to American manufactures we have just opposed, but whose position as a foreigner will give considerable weight to his statement with reference to the question just proposed. Sir Morton Peto says: "Although a million of the population had been withdrawn from their industrial occupations to assume arms, the progress of peaceful industry had not been arrested. . . . To this may be added the most remarkable feature of the civil war in the United States—namely, the marvellous sustentation of credit in the North. On the European side of the Atlantic the inquiry was constantly repeated, 'When will the finances of America collapse?' Speculations were made in the money markets on the assumption that the American resources must inevitably fail. Yet on the American side not only was there no idea of failure, but, despite the increase of debt, which accumulated with a rapidity absolutely unknown in any previous history, the pressure of taxation was unflinchingly borne and the payment of interest was regularly made. Nor was this all. Although the country might have been expected to be drained both of men and stores to supply the immense armies which were sustained, the requirements of the entire population were met without any increase

of prices beyond that which resulted from a depreciation of the currency. Throughout the war the nation gave evidence of rapidly-increasing wealth. Probably the parallel of this is not to be found in the world's history. All records, of whatsoever period, show that during fierce and desolating struggles the populations engaged in them have suffered fearful privations and miseries, and that protracted periods have elapsed before they have been able to recover from their effects. America, which in so many respects has shown herself superior to ordinary rules, has, in regard to the effects of war, shown that the heaviest and most costly conflict can be borne not only without exhaustion, but even with an increase of national prosperity. If I am asked to account for this, I can only do so by attributing it to the wonderful elasticity of the RESOURCES OF THE UNITED STATES. In my travels through the United States during the autumn of last year the abundant resources of the country was the feature which struck me most forcibly. It appeared to be the key to everything else. I saw wild territories, both of forest and prairie, being cleared up and populated; I saw villages springing into towns and towns into cities with a rapidity so marvellous that one's first idea was to attribute it all to the work of some powerful magician; I passed through whole regions where every description of grain seemed to spring up spontaneously; I went over lines of railway seemingly constructed for the express purpose of conveying this produce to ports from which it could be shipped to countries where there was a superabundant population to consume it; I passed down immense rivers swarming with steamboats and other vessels filled with produce; I was brought into communication with the merchants who conducted the varied commerce to which all this gave rise; and looking at all that I met with, I could not fail to be struck, as a practical man, with the extraordinary and wonderful character of American resources, surpassing by far anything of which we have the slightest experience in the Old World, great as are our own products and remarkable as is the industry of our teeming population."

It is by looking at the way in which this country passed through that most trying of ordeals, a civil war, that we are able to form some idea as to the prospects of the republic. If that which usually cripples a nation served only to show the magnitude of the resources which had been suffered to lie idle; if the development of these resources continued and increased, even at the time when more than a million of men were drawn away from industrial pursuits and employed in destroying one another,—what may not be expected from a united land, from a people whose swords have been beaten into ploughshares and their spears into pruning-hooks? Peace and unity, twin blessings, are the earnests of a still greater advance in agriculture, in commerce, in manufactures, in all that makes a nation wealthy and prosperous at home and respected abroad. The public spirit of the

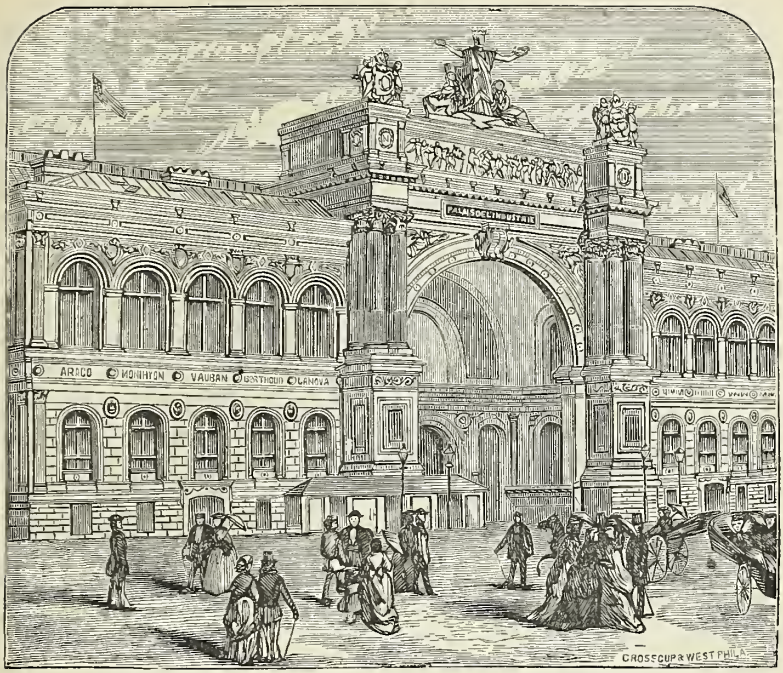
people, which leads them to lend their aid, frequently with only too great readiness, to any scheme which promises to assist in the improvement of the natural advantages of their country, will every year have a better opportunity to impel its possessors to works of national utility. It is this very public spirit which specially strikes foreigners, who frequently have difficulty in appreciating at its full value the influence of a free government in developing a love of country which leads its possessor to feel how thoroughly his country's interests are his own. Sir Morton Peto says: "In a recent article on 'Cheese as a Staple Article of Export,' written by the secretary of the Maine Board of Agriculture, I find the following curious facts adduced to support an argument that '*cheese is as good as gold*:' 'The export demand governs the price of cheese. In June, 1862, prime cheese was bringing in Herkimer county, N. Y., 8 cents per pound; but as soon as specie payments were suspended and gold bore a premium the price of cheese advanced with even step. When gold fell, the price of cheese receded; when gold rose, the price of cheese advanced; and all the while just in proportion to the current rate of exchange. This proves conclusively that to cancel indebtedness or to pay for goods purchased in England cheese was as good as gold, and answered the same purpose exactly. With a market of such great capacity open to us, it seems as certain as anything in this uncertain world can be that the manufacture of cheese will increase annually; and I see no reason why all farmers who possess really good grazing-land may not share in the profits.' I quote this passage the more readily because it illustrates the sort of enthusiastic feeling which appears to enter into every enterprise an American embarks in. On this side of the Atlantic it is difficult to realize the sort of feeling which induces an American to treat such a product as cheese as a substitute for gold in commercial transactions. Yet it is this sort of enterprising calculation which drives forward the United States. They try to make everything—even cheese—as 'GOOD AS GOLD.'" The prediction of the American author quoted by Sir Morton is being verified. In 1867 the exports of cheese amounted to 52,352,127 pounds; in 1868 to 51,097,203 pounds; in 1869 the quantity exported fell to 39,960,367 pounds, but during the year ending June 30, 1873, it had risen to 80,366,540 pounds, and the quantity exported during the year ending June 30, 1874, was 90,611,077 pounds. There is another article of export which promises to be "as good as gold"—viz., bacon and hams, the exports of which, during the year just named, were as follows: 25,648,226 pounds in 1867; 43,659,064 pounds in 1868; 49,228,165 pounds in 1869; 395,381,737 pounds in 1873; and 347,405,405 pounds in 1874. It is by the aggregate of such articles as these that "the balance of trade" is being turned in favor of the United States; and knowing how great the resources of America are, her citizens can look hopefully toward the future with the feeling

that there is sufficient energy and enterprise in the country to make the most of the gifts of a beneficent Providence.

One of the most important facts upon which to rest bright hopes with reference to the future of America is the feeling of unity which is pervading the country, and which will doubtless be greatly increased by the remembrances of the past awakened by the celebration of the one hundredth anniversary of American independence. The descendants of those who fought shoulder to shoulder the battles of freedom—who laid the foundations of a national edifice which still exists—will surely lay aside then, if ever, animosities of recent origin, and remember that they are brethren. The scenes at the celebration (June 17, 1875) of the centennial of the battle of Bunker Hill, elsewhere alluded to [see HISTORICAL SKETCH, page 150], were a proof that the feeling of brotherhood is stronger than the bitter feeling awakened by the civil war. It will be remembered that the United States has a mission, that the eyes of the world are upon this republic, that dissension and strife among her citizens would cause joy to tyrants only, but unutterable grief to the oppressed of every land and clime. It is the mission of the United States to prove that the free government which has stood for a hundred years is stronger to-day than ever, not only in armies and armaments, but in the affectionate regard which every citizen feels for a national unity of which he is not a mere appendage, but a part. In order to fulfil his share in this mission, each citizen of the republic will endeavor to forget the time of internecine strife, and to look forward to a future when in peace or in war there will be no North, no South, no East, no West—when civil war will be impossible, and the united front presented to every foreign foe will cause the latter to deem a conflict with this country undesirable. Toward such a state this nation is rapidly hastening—nay, it has in part attained it. Were a just war to be declared to-morrow, were an invading foe to appear upon our shores, it would soon become evident that "E pluribus unum" is still the national motto in fact as well as upon shields and banners, in Fourth-of-July orations and stump speeches.

Admitting, then, that this country will preserve the republican form of government which distinguishes it among the nations of the earth, there is another resource which is no small item in the inventory of our national wealth. We allude to the constant flow of immigration into this country, and to the rapidity with which the fertile lands of the West are being peopled. It may seem strange to the reader at first sight that this should be mentioned as a resource; yet when he remembers that (although there is considerable fluctuation in the annual number of immigrants) the number of the foreigners who have come to reside in this country since 1846 has exceeded *five and a half* millions, he will at once see that this is no inconsiderable item on the credit side of our national account. Men who

in Europe would have dragged out a miserable existence without any hope of rising, have come to this country and become the possessors of comfortable homes, earned by the honest labor of their own hands. Every such man (and they could be counted by hundreds of thousands) is an addition to the national wealth. For such immigrants there is abundance of room. Proof of this statement can be found elsewhere [see TABLE VIII. in APPENDIX]. If Texas were as densely peopled as Massachusetts, it would hold all of the present population of the United States. Because, therefore, this country offers special advantages for the industrious immigrant; because the offer of a home is yearly accepted by many tens of thousands; because the resources of the United States are so ample that every such addition to their population is an addition to their wealth; because the progress made in the past has exceeded the most sanguine expectations of the friends of the great republic,—for these and for many other reasons equally valid, but which we have not space even to mention, it is not too much to hope that the progress of the future will not belie the promise of the present—will not make void the record of the past—but will prove beyond controversy the superiority of a republic to every other form of government, and the value (not the theoretical but the practical value) of free institutions to assist and to direct the development of the resources of a continent.



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PARIS EXPOSITION, 1855.

THE Paris Exposition of 1855 was held in the building above represented, which is still standing on the *Avenue des Champs Elysée*, and which was named the "Palace of Industry." The Art Department was in another building, situated a short distance to the east of this edifice on the *Avenue de Matignon*, and named the "Palace of the Fine Arts." The Exposition was opened on the 15th of May by the emperor in person, and lasted six months. The arrangements for it were made and the whole affair was managed by an Imperial Commission, of which the prince Napoleon was appointed president. When it is remembered that it was carried on during the Crimean war, it must be acknowledged that it had a large degree of success. The number of exhibitors, according to the official report, was 21,779, and the number of visitors to the Industrial Department was 4,180,117, to the Art Department 935,601, and to the Chinese Museum, in the same building with the latter, 46,612, making a grand total of 5,162,330. Every assistance was rendered to the exhibitors by the French government. Articles which were prohibited or partially prohibited by the existing customs regulations were admitted for the Exposition on a special tariff of twenty per cent. *ad valorem*, and the authorities

winked at the admission of large quantities of goods not very necessary for the occasion, such as pottery, alpacas, woolen and cotton goods, etc. This was done to oblige exhibitors and to gratify the desires of French purchasers, especially those of the poorer class. An instance of the extent to which this complaisance was carried is the fact that 296 crates of pottery, weighing 58 tons, were introduced under this tariff after the Exposition was opened, and even after its close 100 crates, weighing 15 tons, were admitted in the same manner. Another circumstance shows still more strikingly the good-will of the government toward those who took part in the display. All the taxes and customs were increased two-tenths after this special tariff had been granted. As no exceptions were made, this duty was, of course, increased to twenty-four per cent. The official report of the Exposition, however, says: "The question having been examined by the Imperial Commission and by competent authorities, it was decided that Article 48 should be interpreted in the sense which was most favorable to foreign exhibitors, and that the duty of twenty per cent. should be collected without the addition of the tenths." The care and consideration of the management extended to the smallest details. Even the packing-cases of the exhibitors were received, stored away, and delivered again in good order at the close of the Exposition, all for the moderate fee of one franc seventy-five centimes, or about thirty-five cents apiece for a single one or for a number of them. For foreigners 10,387 cases were thus stored, and for natives 5457. The official report of this Exposition, to which we have several times referred, is rendered doubly interesting by details which are not usually given, and some of which could be procured only in a country with a police service like that of France. Some of these details show that the effect of the Exposition upon the number of travellers arriving in Paris, and upon other matters likely to be affected by this enterprise, was not so transient as one would suppose. The number of travellers coming into Paris by the railroads in 1854 was 3,328,386, in 1855 it was 4,081,121, and in 1856 it was 3,923,360. The number of travellers admitted into the hotels, etc., in 1854 was 358,719, in 1855 it was 497,285, and in 1856 it was 438,005. The receipts of the theatres, museums, balls and concerts in 1854 amounted to 12,401,264 francs ($2,480,252), in 1855 to 16,149,476 francs ($3,229,895), and in 1856 to 14,130,039 francs ($2,826,007). An examination of these figures will show that, though the figures for the year of the Exposition are the largest, those for the year 1856 are much larger than those of the year 1854, showing that the effect of the enterprise still continued. The American exhibitors numbered only 131, but carried off a goodly number of prizes. Fourteen States were represented by commissioners, among whom were Maunsell B. Field and T. H. Wales from New York, James Swaim from Pennsylvania, and other well-known citizens; California had no less than four commissioners.

TOPOGRAPHY OF THE UNITED STATES.

THE United States of America comprise 37 States, 11 Territories and 1 Federal District. They are classified in five geographical divisions—viz., the Eastern or New England States, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut; Middle States, New York, New Jersey, Pennsylvania and Delaware; Southern States, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana and Texas; Western States, Arkansas, Tennessee, Kentucky, West Virginia, Ohio, Michigan, Indiana, Illinois, Missouri, Iowa, Wisconsin, Minnesota, Kansas, Nebraska; Pacific States, California, Oregon and Nevada. The Territories are the Indian Country, New Mexico, Colorado, Wyoming, Dakota, Montana, Idaho, Utah, Arizona, Washington and Alaska (which is unorganized). The District of Columbia, being under the immediate government of Congress, is also classed as a Territory.

The *original thirteen States* which declared their independence of Great Britain were New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina and Georgia. The area of the United States at the close of the Revolutionary war, in 1783, was 841,107 square miles. By successive accretions the territory of the great republic has grown to 3,603,884 square miles. The additions have been as follows: Louisiana Territory, purchased from France in 1803, 930,928 square miles; Florida, acquired from Spain in 1821, 59,268 square miles; Texas, annexed to the Union in 1845, 237,504 square miles; Oregon, as settled by treaty in 1846, 280,425 square miles; California, New Mexico and other territory acquired from Mexico in 1847 and 1854, 677,262 square miles; Alaska, purchased from Russia in 1867, 577,390 square miles. The aggregate population in 1870 was 38,925,598, of whom 33,592,245 were white, 4,886,387 colored, 63,254 Chinese and 383,712 Indian. There were 10.70 persons to a square mile.

ALABAMA.

Situation and Extent.—Alabama is bounded on the N. by Tennessee, E. by Georgia and Florida, S. by Florida and the Gulf of Mexico and W. by Mississippi. It is situated between latitudes 30° 10′ and 35° N. and longitudes 8° 05′ and 11° 35′ W. from Washington, or 85° 5′ and

88° 35′ W. from Greenwich. The extreme length of the State is 335 miles; extreme breadth, 200 miles; area, 50,722 sqnare miles, or 32,462,080 acres.

Physical Features.—*Surface.*—The Alleghany Mountains enter Alabama at the north-east corner, and have a breadth of about 50 miles. One range extends in a westerly direction almost to the Georgia line; another range stretches south-west as far as Tuscaloosa. The ridges gradually sink away into hills and then into a vast plain, broken by gentle swells and interspersed with pine barrens and rich alluvial river-bottoms. *Rivers and Bays.*—The Tennessee River makes a sweep of nearly 300 miles through Alabama, and drains the water-shed north of the Alleghanies. Steamboats ascend as far as Knoxville, Tenn., but the Muscle Shoals, at Florence, are a serious impediment to navigation. The enlargement of the old canal is projected, together with other improvements, which the United States engineer estimates will require an appropriation of $750,000 for the year ending June 30, 1876. The Mobile River, which drains the whole water-shed south of the mountains, is formed by the confluence of the Alabama and the Tombigbee Rivers, 50 miles above Mobile Bay. The Alabama, formed by the union of the Tallapoosa and the Coosa, is 600 miles long and navigable to Montgomery, 320 miles. The Tombigbee, 450 miles long, is navigable to Columbus, Miss., 420 miles above Mobile. The main branch of the Tombigbee is the Black Warrior, navigable for large steamboats to Tuscaloosa, 300 miles north of Mobile. Along the eastern boundary of the State rnns the Chattahoochee River, navigable 300 miles to Columbus, Georgia. Alabama has a coast-line of 60 miles on the Gulf of Mexico. Mobile Bay, 35 miles in length, has a depth of 21 feet in its main channels, bnt vessels drawing more than nine feet of water cannot reach the docks at Mobile. Extensive improvements were begnn in 1870; Congress has made five annual appropriations, amounting in the aggregate to $375,000. Dog River Bar has been widened throngh its whole length (7⅓ miles) to 120 feet, with a depth of 13 feet of water at low tide. Choctaw Bar Channel has been enlarged to the same dimensions. The estimated cost of the work will be half a million of dollars. *Forests.*—The low, sandy country near the coast prodnces immense qnantities of yellow pine, which yields lumber, turpentine, tar and pitch. The other principal trees are the cypress, cottonwood, magnolia, oak, hickory, cedar, poplar, elm, ash, walnut, locust, gum, chestnut, dogwood, maple, etc. Bears, wolves, foxes, deer, raccoons, opossums and many other wild animals still range the forests.

Soil and Climate.—Among the hills of the northern counties the soil is only moderately fertile. The valley of the Tennessee, from 5 to 25 miles in width, is very rich, as are also the large prairies and river-bottoms of the central region, which produce from 800 to 1000 pounds of cotton to

the acre. In the south are extensive forests and pine-barrens, with many fertile alluvial lands. The summer climate, tempered by the mountains in the north and by the sea-breezes in the south, is in the main healthful, although there are malarious districts along the rivers. Cattle thrive in the woods all winter, and the streams are never frozen. The isothermal lines for the northern and southern portions are respectively: Spring, 60°–75°; summer, 77°–82°; autumn, 60°–70°; winter, 40°–55°; yearly mean, 60°–70°. The annual rainfall at Mobile was 76.68 inches; at Montgomery, 65.80 inches. Warden says that peach trees are in blossom February 15; green peas and strawberries fit for the table May 2; blackberries, mulberries and whortleberries ripe May 16; sweet corn large enough for roasting June 29.

Agricultural Productions.—Alabama is distinctively an agricultural State. Only Mississippi and Arkansas have a larger percentage of the working population engaged in tilling the soil. According to the census of 1870, the value of the farms, farm implements and live-stock was $97,716,055; value of all farm products, $67,522,335; number of farms, 67,392; average size, 222 acres. Among the productions were 429,482 bales of cotton (of 400 pounds each), 31 hhds. of cane-sugar, 433,281 gallons of molasses, 5156 of domestic wine, 381,253 pounds of wool, 222,945 of rice, 320,674 of honey, 1,871,360 bushels of sweet potatoes, 156,574 of peas and beans. Alabama stood third in the production of cotton (next to Mississippi and Georgia) and sixth in rice. In 1873 there were grown 21,751,000 bushels of Indian corn, 884,000 of wheat, 200,000 of rye, 813,000 of oats, 170,000 of Irish potatoes, 200,000 pounds of tobacco and 17,000 tons of hay. The number of animals in January, 1874, was 106,600 horses, 102,500 mules (only Tennessee had a larger number), 334,100 oxen and other cattle, 173,400 milch cows, 189,900 sheep, 990,100 swine. The value of farms in Alabama was diminished by $108,000,000 in the decade from 1860 to 1870, which shows the destructive effects of the civil war.

Manufactures.—The census of 1870 reported 2118 establishments; hands employed, 8248; value of annual product, $13,040,644. Among the establishments there were for the manufacture of firearms 16, furniture 21, iron 22, leather 141, liquors 2, paper 1, printing and publishing 15, tobacco 14, agricultural implements 3, boots and shoes 6, cotton 13, woollen 14, flour 613. There were 284 mills for sawing lumber, employing 1428 hands; value of raw material used, $520,513; value of products, $1,359,083. Of resin the production was 53,175 barrels, value $112,150; of turpentine, 409,950 barrels, value $168,053.

Minerals and Mining.—Extensive beds of bituminous coal, from one to eight feet thick, cover an area twice as large as that of the State of Delaware. Iron, lead, ochres, manganese, marbles (white, black, clouded

and buff-colored), limestone and granite are found in considerable quantities. Three mining establishments were reported by the last census, producing to the value of $52,500.

Commerce and Navigation.—A river navigation of 2000 miles centres at Mobile, which is also the chief port for foreign commerce. In 1874 the amount of revenue collected was $96,765; vessels arrived, 188; cleared, 164; value of imports, $833,644; of exports, $10,235,293. Among the articles exported were 170 barrels of flour, 130,880 bales of cotton, 2172 barrels of resin and turpentine, 4,670,008 feet of lumber. Four sailing vessels and two steamers were built. 132 vessels are registered in the customs district, of which 30 are steamers, 80 sailing vessels, 22 barges.

Railroads.—The State had 46 miles of railroad in 1844. In 1873 the statistics were: Miles of railroad, 1722; total capital account, $61,001,839; cost per mile, $37,016; receipts, $4,957,941; receipts per mile, $3008; receipts per inhabitant, $4.84; net earnings, $1,155,811; number of locomotives, 201; passenger-cars, 141; freight-cars, 2421.

Public Institutions and Education.—The State Penitentiary is at Wetumpka, the Hospital for the Insane at Tuscaloosa, the Asylum for the Blind at Mobile, the Asylum for the Deaf and Dumb at Talladega. There were 611 blind, 401 deaf and dumb and 555 insane reported by the last census. The Constitution prescribes that all children between the ages of five and twenty-one shall be educated free of charge. The latest school statistics accessible are as follows: School population, 403,735; children enrolled, white, 61,942, colored, 41,673; schools, 2561; teachers, 2650; expenditures, $606,517. The University of Alabama, founded in 1831, has an endowment of $300,000. Its buildings were burned during the war, but have been replaced. An annual appropriation of $24,000 is made by the State. The academic department has six courses of study. Howard College has ten departments. The Agricultural and Mechanical College, at Auburn, owns a property valued at $327,000, and has 102 students. Talladega College affords to its pupils preparatory, normal, collegiate and theological departments. The Medical College of Alabama, at Mobile, was attended by 84 students in 1873–4, and graduated a class of 29. It has 12 professors; $75,000 have been expended on the medical museum. The 8 colleges of the State report 63 teachers, 1026 pupils and an income of $108,800. There were 1430 libraries in Alabama in 1870, 89 newspapers and periodicals, and 2095 church organizations, having 1958 edifices.

Cities and Towns.—Mobile, the chief city, and next to New Orleans the greatest cotton mart in the United States, is situated on the Mobile River, 30 miles above the Gulf of Mexico. Mention has already been made of its commerce. The city is the centre of 4 railroads. There are several manufactories, 2 daily newspapers and 30 churches. Population in 1870,

32,034, of whom 13,913 were colored. Montgomery, the capital and second city of the State, stands on a high bluff on the Alabama River, 330 miles above Mobile. Large steamers navigate the river and four railroads enter the city. The State-house is an imposing structure, and there are other fine public buildings. It has 14 churches and 3 daily newspapers. Population, 10,588, of whom the colored people numbered 5183. The other cities are Selma, on the Alabama River (population 6487), Huntsville (4907), Talladega (1933), Tuscaloosa, the former capital (1689), Eufala (3185) and Tuscumbia (1214).

Population.—Alabama was peopled largely by immigration from the other Southern States. Virginians and Tennesseeans settled the northern part, Georgians the eastern, North Carolinians the western and southern. About Montgomery the Georgians predominated. Some French refugees made a home here after the downfall of Napoleon. The number of inhabitants in 1820 was 127,901 (slaves, 41,879); 1830, 309,527 (slaves, 117,549); 1840, 590,753 (slaves, 253,536); 1850, 771,623 (slaves, 342,844); 1860, 964,201 (slaves, 435,080); 1870, 996,864 (free colored, 475,510). Only 9962, less than one per cent., were of foreign birth. There were born in the United States 987,030, in Alabama 744,146, in Georgia 93,028, in North Carolina 30,290, in Virginia 29,636. Of natives of Alabama 129,554 were residing in other parts of the Union.

Government and Laws.—The legislative authority is vested in a senate of 33 members, elected for four years, and a house of representatives of 100 members, elected for two years. The executive authority is vested in a governor, lieutenant-governor, secretary of State, auditor, treasurer and attorney-general. The judicial authority is vested in a supreme court (of three judges), twelve circuit courts, five courts of chancery, and sixty-five probate courts, one for each county. The judiciary is elective. The civil divisions of a county are called "beats" instead of "districts," as in Georgia and the neighboring States.

History.—The territory now called Alabama, which signifies in the Indian tongue "here we rest," was entered by Ferdinand de Soto in 1540. Coming in from Georgia, near the headwaters of the Coosa River, he journeyed southward as far as Mavilla (Mobile). The Indians, who resisted his entrance into the town, were defeated, and many hundreds of them slain. In the burning of the settlement the baggage of the Spaniards was consumed. De Soto retreated toward the north and passed over into Mississippi. Bienville, the French governor of Louisiana, built a trading-post and fort on Mobile Bay in 1702. By the treaty of Paris, in 1763, the French possessions were ceded to Great Britain. The territory of Mississippi, which included the present State of Alabama, was organized in 1798. In 1819 Alabama was admitted into the Union as a State. January 11, 1861, it passed an ordinance of secession, and March 13 united with the

Southern Confederacy. The first battalion for the Confederate army started for Virginia May 1. Huntsville was taken by Gen. O. M. Mitchell, April 9, 1862, and the Union forces held possession of the territory north of the Tennessee River. Rear-Admiral Farragut reduced Fort Morgan and Fort Gaines, in Mobile Bay, August, 1864. Major-General Wilson occupied Selma April 3, 1865, and Montgomery April 12. On the same day Mobile was taken, and "the last gun was fired for the Confederacy" [see HISTORICAL SKETCH, page 146]. A new State Constitution was ratified February 4, 1868.

ARKANSAS.

Situation and Extent.—Arkansas is bounded on the N. by Missouri, E. by Tennessee and Mississippi (separated by the Mississippi River), S. by Louisiana and W. by Texas and the Indian Territory. It is situated between latitudes 33° and 36° 30′ N., and longitudes 12° 45′ and 17° 40′ W. from Washington, or 89° 45′ and 94° 40′ W. from Greenwich. The State is 250 miles long from north to south and from 160 to 270 miles wide from east to west. The area is 52,198 square miles, or 33,406,720 acres.

Physical Features.—*Surface.*—The eastern part is swampy and low. Near Little Rock the hill-country begins, with summits from 400 to 500 feet high. In the west and north-west are many mountain-peaks and ranges, none of them of very great elevation. The Mamelle is a conical peak 1000 feet high. A "Sugar-Loaf" mountain is found in each of the four counties of Izard, Searcy, Marion and Van Buren. The Boston Range attains an elevation of more than 1000 feet above the general drainage of the country. Boat Mountain (1527 feet above the Little Red River), the Pilot and Stack Mountains are a conspicuous group. All these peaks have sandstone summits. In Perry and Yell counties are the Fourche la Fave (probably a corruption of Fourche de la Fauve—deer's fork) and the Petite Jean. In Polk county is a complicated range called the Cossitott Mountains. Along the southern flank of a ridge in Hot Spring county are the famous "hot springs of the Washita," more than a hundred in number. Forty-two are of sufficient size to be located upon the geological chart. Their temperature ranges from 100° to 154°, and eggs have been cooked in them. "The Mammoth Spring" of Fulton county discharges 8000 barrels of water per minute. It never freezes, and the mean annual temperature is 60°. In the north-west is a natural dam formed by a solid bed of limestone from six to eight feet thick. *Rivers.*—The Mississippi River washes the eastern boundary for 230 miles in a direct line and 400 by its windings. The Arkansas, 2000 miles long, flows across the State in a tortuous channel of 500 miles. At high water steamboats ascend as far as Fort Gibson, in the Indian Territory. The St. Francis, 450 miles long,

forms the eastern boundary between Arkansas and South-eastern Missouri. It is navigable for 150 miles, but there is danger from "snags." The snag-boat operations for the year ending June 30, 1876, will require an appropriation from the general government of $194,000. A great earthquake in 1811 widened the river channel from five to twenty miles, producing Lake St. Francis. White River is navigable since the snag-boat operations of 1874 as far as Jacksonport, 340 miles. The Washita, a branch of the Red River, can be ascended by steamboats for 350 miles. Water communication is afforded to the south-western counties by the Red River, which makes a detour into the State. Arkansas has altogether more than a thousand miles of steamboat navigation upon its rivers. *Forests.*—A great variety of trees grow in the woods, among the most common of which are the cottonwood (which attains to a greater size than any other tree), black walnut, white poplar, honey locust, swamp, red and scarlet oak, box, hickory, elm, prickly ash, sweet-gum, sycamore, cypress, hackberry, maple, pecan, buckeye, yellow pine and beech, together with a very large undergrowth of papaw, cane and spice-wood. The bear, wolf, deer, raccoon, wildcat, etc., are frequently seen.

Soil and Climate.—Along the Mississippi River is the "gum-swamp," or "bayou," land and the "black-wax" land, formerly overflowed by the back-water. Since the construction of levees the land has been reclaimed, and sometimes produces two bales of cotton to the acre. The cotton plant sends its roots down from four to six feet into the alluvial sediment. There are vast alluvial meadows along the Arkansas River which produce from 1000 to 1100 pounds of cotton and from 80 to 100 bushels of corn to the acre. The "black-sand land" along the Red River is also remarkable for its fertility. In some sections of the north-west the soil is gravelly and almost worthless, but large tracts are well suited for grazing and produce cereal grains and apples of the finest quality. The climate is subject to very sudden changes from the cold north winds. A traveller records in his diary that in the latter part of January he found the fields of a vivid green, the flowers blooming, the birds singing and the thermometer at 67°. Nearly two months later (March 21) ice formed and the mercury sank to 22°. The isothermal lines for the several seasons are as follows: Spring, 60°; summer, 77°–80°; autumn, 60°–65°; winter, 40°–45°; annual mean, 60°. The mercury has been known to reach 90° on as many as 50 days during a single summer. The range for the year is from 8° to 99.5°. At Little Rock the mean for 1874 was 62.6°.

Agricultural Productions.—The census of 1870 reported the number of acres in farms as 7,597,296, of which 1,714,466 acres (24.5 per cent.) were improved. The total value of all farms, farm implements and live-stock was $59,489,613; value of farm productions, $40,-701,699; per acre of improved land, $21.88. There were produced 247,-

968 bales of cotton, 214,784 pounds of wool, 73,021 of rice, 92 hhds. of cane-sugar, 72,008 gallons of cane-molasses, 147,203 of sorghum, 75 of maple molasses, 890,631 bushels of sweet potatoes, 47,376 bushels of peas and beans, 276,824 pounds of honey, 3743 gallons of wine. In 1873 there were raised 16,208,000 bushels of Indian corn, 785,000 of wheat, 39,700 of rye, 786,000 of oats, 408,000 of potatoes, 945,000 pounds of tobacco, 12,800 tons of hay. The total value of these seven staple crops, grown on 822,293 acres, was $15,510,090, an average of $18.74 per acre. In 1874 the State had 162,500 horses, 83,600 mules, 256,000 cattle, 151,800 milch cows, 176,300 sheep, 960,500 swine. There were 49,359 farms, averaging 154 acres each.

Manufactures.—But little attention has been given to manufacturing. The last census gives 1079 establishments; hands employed, 3206; value of products, $4,629,234. For the manufacture of firearms there were 8 establishments, iron 2, leather 35, tobacco 4, boots and shoes 2, cotton goods 2, ginning cotton 283, wool-carding 13, flour and meal 272. There were 211 saw-mills, cutting 78,692,000 feet of lumber; value of timber, staves, shingles, etc., cut, $1,344,403.

Minerals and Mining.—The State geologist expresses the opinion that Arkansas is destined to take the lead of all the Western States in her resources of zinc and manganese. Anthracite, bituminous and cannel coal is found in considerable quantities; limestone is abundant; iron, lead, copper, gypsum, nitre-earths, kaoline (porcelain clay), granite, freestone, marble and slate exist in many localities. Near the hot springs is a quarry of oil-stone or Arkansas whetstone, said to be equal to any in the world. The saline springs yield an excellent quality of salt.

This State has no direct foreign commerce, but large quantities of cotton, corn, hides, wool, lumber, etc. are exported through New Orleans.

Railroads.—In 1860 Arkansas had 38 miles of railroad. In 1873 this had increased to 700 miles; cost per mile, $63,296; receipts per mile, $1591; receipts per inhabitant, $1.73; total receipts, $927,609; total capital account, $36,901,408; cost of railroad and equipment, $35,721,095. In the adoption of the new Constitution provision was made for aiding, by an issue of bonds, five railroads to a length not exceeding 800 miles, at the rate of $10,000 and $15,000 per mile. The amount of these bonds will be about six millions of dollars.

Public Institutions and Education.—The Penitentiary, the Institute for the Blind and the Deaf Mute Institute are all located at Little Rock. The Industrial University, at Fayetteville, founded on the basis of the Congressional land grant, is to embrace four colleges and thirteen subordinate schools. A fine building, to accommodate 700 students, was erected in 1875. The entire property of the university is $300,000; number of students, 241. St. John's College, at Little Rock, has 102 students

and 6 instructors. Cane Hill College, at Boonsboro', has also a preparatory department. The last statistics attainable report a school population of 196,237; school-houses erected during the year, 187; whole number of school-houses, 1292; teachers, 2641; amount of permanent school-fund, $95,501; total expenditures for two years, $970,307. The number of libraries was 1181; newspapers and periodicals, 56; church organizations, 1371; edifices, 1141.

Cities and Towns.—Little Rock, laid out in 1820 as the capital, and the principal city of the State, is built upon a low bed of rocks (whence its name), 250 miles from the mouth of the Arkansas River. Steamboats can ascend to it, even at the lowest water. Three railroads centre here. It has several manufactories, founderies and flouring-mills. There are nine churches and six newspapers, three of them issued daily. Population in 1870, 12,380 (5274 colored). Helena, on the Mississippi River, is the second city in the State. It is the terminus of two railroads. There are two daily and three weekly newspapers, and seven churches. It is the capital of Phillips county. Population, 2249. Camden, the head of steamboat navigation on the Washita, is a place of considerable trade. It has one daily and three weekly newspapers. Population, 1612 (612 colored). Hot Springs is a place of resort for invalids on account of the medicinal quality of its springs. It has five churches and two newspapers. Population, 1276 (296 colored). Fort Smith, on the Arkansas River, near the Indian Territory, is at the head of steamboat navigation and the terminus of a railroad. The city has four newspapers and nine churches. Population, 2227. Pine Bluff (population 2081) has an extensive trade with the cotton regions.

Population.—The whole territory had but 1052 inhabitants in 1800, although the first settlement was made 115 years before. The population in successive decades was as follows: 1820, 14,273 (slaves, 1615); 1830, 30,388 (slaves, 4576); 1840, 97,554 (slaves, 19,935); 1850, 209,897 (slaves, 47,100); 1860, 435,450 (slaves, 111,115); 1870, 484,471 (free colored, 122,169). There were also 89 Indians. The number born in the United States was 479,445, of whom 232,881 were natives of Arkansas and 246,564 (51.43 per cent.) were immigrants from other parts of the Union. Alabama contributed 28,318, Georgia 25,234, Mississippi 22,088. The number of inhabitants of foreign birth was 5026 (1.04 per cent.). 54,951 people born in Arkansas were residing outside of their native State. Population to a square mile, 9.28.

Government and Laws.—The legislature, which meets biennially, consists of a senate of 26 members, elected for four years, and a house of representatives of 82 members, elected for two years. The governor receives a salary of $5000 a year. The supreme court consists of a chief-justice appointed by the governor and four judges elected by the

people. There are ten circuit courts. A registration of voters is required. Political disabilities may be removed from those who have returned to their allegiance to the Federal Government, by special act of the general assembly.

History.—Arkansas takes its name from an Indian tribe, said to be the tallest and most finely formed of all the savages of the continent. In 1685, the Chevalier de Tonti, failing in his efforts to reach La Salle, entered the Arkansas River and left ten of his men to settle with the Indians near the present town of Arkansas Post. Several families of Canadians soon joined them, and the descendants of those hardy pioneers are still occupying that region. This State was a part of the domain of Louisiana purchased from France in 1803. It was made a separate territory on the admission of Missouri, and was admitted into the Union as a sovereign State in 1836. An ordinance of secession was passed May 6, 1861. The State authorities had previously taken possession of the arsenal at Little Rock and Fort Smith. Helena was occupied by the Federal forces after the battle of Pea Ridge, March 6, 1862, and a military governor was appointed for the State. Little Rock was occupied by the Army of Arkansas Sept. 10, 1863. The surrender of Lieut.-Gen. E. Kirby Smith, commanding the trans-Mississippi department of the Confederate States, ended active hostilities. More than 10,000 men from Arkansas fought on the Federal side. A new Constitution was ratified by the people in March, 1868, and on the 22d of June the administration of affairs was transferred to the civil authorities.

CALIFORNIA.

Situation and Extent.—California is bounded N. by Oregon, E. by Nevada and Arizona, S. by Lower California, a province of Mexico, and W. by the Pacific Ocean. Its length is 775 miles and its greatest breadth 350 miles; area, 188,981 square miles, or 120,947,840 acres. It lies between latitude 32° 20′ and 42° N., and longitude 37° 20′ and 47° 25′ W. from Washington, or 114° 20′ and 124° 25′ W. from Greenwich.

Physical Features.—*Surface.*—The State may be divided into five belts: (1) The Coast Range of mountains, 30 miles wide and from 500 to 8500 feet high. The principal peaks are Mount Hamilton (4440 feet), Monte Diabolo (3856 feet), Mount San Bernardino (8500 feet). (2) The Great Valley of the Sacramento and the San Joaquin, once a lake and now a level plain, 500 miles long and 50 wide. (3) The western slope of the Sierra Nevadas, extending to the foot-hills of the gold region. This belt is from 40 to 50 miles wide, and has an average rise of 180 feet to the mile. (4) The Sierra Nevada Mountains, their summits, of bare granite rock, covered with snow for most of the year. Mount Shasta, 14,440 feet high, shows "a line of perpetual snow." Mount Whitney reaches an alti-

tude of 15,000 feet. (5) The eastern slope of the Sierra, falling away toward the Great Plains. Water-courses furrow the mountains and have cut "cañons," in some cases half a mile deep. The Yosemite Valley, eight miles long and two miles wide, is walled in by mountain-peaks, of which the most prominent are the South Dome, 4737 feet high, and the Sentinel Dome, 4500 feet. Down the Sentinel Falls the water plunges for 3000 feet, which is more than seventeen times the fall at Niagara. In the Sacramento Valley is an extinct Volcano called the Buttes. *Rivers and Bays.*—The basin between the Sierra Nevada and the Coast Mountains is drained by two great rivers. The Sacramento rises at the base of Mount Shasta, near the northern boundary, and runs a southerly course for 400 miles. It is navigable to Red Bluffs, 300 miles. The San Joaquin, 350 miles long and navigable for 150 miles, flows toward the north-west until it unites with the Sacramento and empties into San Francisco Bay. The Klamath flows through the north-west corner, and the Colorado forms a portion of the south-eastern boundary. There are many other streams of small size. Lake Tulare is 34 miles long and 21 wide. Mono Lake, so strongly impregnated with mineral salts that no living thing inhabits it, constitutes a sort of American Dead Sea. There are many bays along the 700 miles of sea-coast. San Francisco Bay affords the best harbor on the Pacific. It is 50 miles long, 9 wide and deep enough to float the navies of the world. *Forests.*—The forest products are relatively small. In many sections timber is scarce, though some counties are rich in forests of beautiful and stately sugar-pine (from 18 to 25 feet in circumference), yellow, digger, or scrub pine, tamarack, white and red fir, live, white and black oak, chestnut, cottonwood, spruce, ash and red-wood (250 feet high). The foot-hills of the Sierras have an extensive growth of pines, cedars and other evergreens. *The Big Trees* are in eight separate groves; the most noted is the Calaveras group, discovered in 1852. The tallest tree is 385 feet high; the "Grizzly Giant" is 93½ feet in circumference. One cut down had a diameter of 24 feet, and from the number of its rings must have been 1300 years old. It is supposed that some have been growing more than 2000 years. Many wild animals still infest the forests. Of these the grizzly bear is the most formidable; it sometimes weighs 1800 pounds. The first explorers found also large herds of elk, deer, antelopes, wild cattle and wild horses. In the early days lumber was worth $400 per thousand feet, and it was imported even from Maine by the tedious passage around Cape Horn.

Soil and Climate.—No richer land can be found in the world than in the valleys of California, where the soil is a deep black alluvial. A diluvial drift of sand and loamy matter covers the foot-hills. In the south-east is a section of the Colorado Desert, having a very scanty vegetation. Every variety of climate is found in California. From Novem-

ber to Mareh is the rainy season, corresponding to the winter of the East. Geraniums, oleanders and eamellias are left out of doors, and a bouquet ean be gathered from the gardens of San Franeiseo upon any winter's day, while upon the Sierra summits the snow is from ten to twenty feet deep and the winds are blowing "with violenee enough to polish the faces of the roeks." Farmers plough in Deeember, and sow wheat, barley and oats until Mareh. At the end of January the grass is a foot high in the river-bottoms and peach-orehards are in bloom. February is the June of the Paeifie. In summer the trade-wind, ehilled by the waters of the Northern Paeifie Ocean, blows directly inward, often bringing heavy fogs. The thermometer at San Franciseo rarely rises above 80°, and overeoats are often needed, while the Great Valley, not fifty miles away, glows with a furnaeeheat of 100° to 115°—whenee the name California (ealeo-furnan). However, the thermometer always goes down with the sun, and blankets are needed at night. Thunder-storms are almost unknown, and during the dry season there is hardly a drop of rain. Irrigation is extensively praeticed. Southern California affords a climate for invalids surpassing that of Italy. The mean temperature at Santa Barbara is 60.2°, at San Diego 62°, at San Franciseo 56.6°, and at Fort Yuma (in the Colorado Desert) 73.5°. The isothermal lines present a eurious tangle, in many eases running almost due north and south through the whole length of the State. The isothermals of spring are 52° in the north-west and 70° at Fort Yuma; summer, 57° to 90; autumn, 57° to 75°; winter, 45° to 55°; annual mean, 52° to 70°. The annual rain-fall varies from 3.15 inehes at Fort Yuma to 34.56 at Humboldt Bay.

Agricultural Productions.—All the varied products of the United States, from apples and potatoes to oranges and sugar-eane, are grown in California. Fruits are abundant, and of great size. Among them are apples, peaehes, pears, plums, eherries, oranges, lemons, limes, figs, prunes, almonds, mulberries, aprieots, pomegranates, neetarines, ete. The olive is produeed in great perfeetion. Wheat, oats, rye and flax are indigenous. Cotton, tobaeeo, riee, hops, hemp, jute, tea, eoffee and ehicory are suceessfully eultivated. The grapes and wines are eelebrated. Mulberry trees thrive better than in Franee, and the production of silk coeoons is annually inereasing. California fruits are now sold in all the large Eastern markets. Pears have been sent through to New York at a freight of $1075 per car load. In 1870 the State eontained 23,707 farms, averaging 482 aeres eaeh, whieh is larger by 150 aeres than the average of any other State. The value of the farms, farm implements and live-stoek was $184,521,470; of farm produetions, $49,856,024. The production of domestie wine was 1,814,656 gallons, whieh was more than five times that of any other State, and nearly three-fifths of the whole quantity produeed in the United States. Nearly one-third of the whole barley erop was grown

in California. This State stood next to Ohio in the number of sheep and fifth in the wheat crop; in 1874 it ranked first in sheep.

Mines and Mining.—"The El Dorado of the nineteenth century" is no misnomer for California, which has the most wonderful gold-fields of the world. They were discovered in the middle of the last century by the Jesuits, who kept the knowledge a secret. In February, 1848, Captain Sutter, while digging the tail-race for a saw-mill, found gold, and the news of the discovery at once spread. The excitement extended throughout the Union, and the "Argonauts of '49" came swarming to the gold-fields. People ran about the country picking up the precious lumps, "as hogs in a forest root for ground-nuts." One man employed 60 Indians and made a dollar a minute; another gathered 2½ pounds in 15 minutes. When the miner, with his basket or pan, could not gather from $30 to $40 a day, he moved to a new place. The first deposit of gold from California was received at the United States Mint in Philadelphia Dec. 8, 1848. After melting, the average value of the bullion was $18.50 per ounce. The product of 1848 was $10,000,000; 1849, $40,000,000; 1853, $65,000,000. Since the last-named year the annual product has fallen off, and the number engaged in mining is much smaller. Organized companies, with capital and machinery, have to a large extent displaced the individual gold-hunter with his simple pan. "In no other part of the world has cinnabar, the common ore of quicksilver, been found so widely disseminated as in California," says the United States Commissioner of Mines. The old Almaden mine of Spain has been worked for 2500 years, and is still the most productive. The New Almaden of California, within twenty years, yielded 537,176 flasks of 76½ pounds each. The New Idria is but slightly inferior, and more than twenty other mines have been successfully worked. There are also valuable deposits of iron ore, coal, copper, tin, platinum, manganese, asphaltum, petroleum, lead, zinc, bismuth, gypsum, marble, granite, limestone, borax, sulphur, salt, etc.

Manufactures.—Although a new State, and furnishing such wonderful advantages for agriculture and mining, California has some extensive manufactures. The census of 1870 reported 3984 establishments, employing 25,392 hands, and producing to the value of $66,595,556. The value of the molasses and syrup refined was nearly four millions of dollars; value of lumber sawed and planed, $6,279,064.

Commerce and Navigation.—For the quarter ending Dec. 31, 1847, the value of the exports was $49,597.53; imports, $53,589.73. Hides and tallow were almost the exclusive exports. In June, 1849, there were 300 sea-going vessels in the port of San Francisco, and since that time the commerce has increased with a rapidity to which the world's history affords no parallel. For the year ending June 30, 1873, the value of imports was $39,422,604; value of exports, $38,716,497. The value of a few leading

articles exported was, wheat, $17,358,543; copper, $96,756; gold (bullion and coin), $7,126,759; silver, $3,071,553; machinery, $218,761; leather, $181,324; fish, $283,142; quicksilver, $614,940; number of vessels entered, 580; cleared, 675. The shipments from New York to San Francisco, *viâ* the Isthmus of Panama, were valued at $3,042,618; shipments from San Francisco to New York, by the same route, $3,667,107.

Railroads.—In 1873 the number of miles of railroad was 1208; total capital account, $154,090,809; cost per mile, $95,590; receipts, $15,276,749; receipts per mile, $9477; receipts per inhabitant, $23.68. In 1860 the State had but 23 miles of railroad.

Public Institutions and Education.—The State Prison, at San Quentin, has 453 cells. The State Lunatic Asylum, at Stockton, established in 1853, has extensive grounds and accommodations for more than 1000 patients. There is an institution for the deaf, dumb and blind at Oakland, and a Reform School for boys and girls at San Francisco. The school-fund consists of State bonds to the amount of $1,417,500, bearing legal interest. March 1, 1874, there was subject to apportionment for school purposes $316,631; whole number of schools, 1868; teachers, 2436; pupils, 110,188; total receipts for school purposes, $2,551,800. The University of California was opened in 1869. It is designed to include a department of letters, of science and the arts, of mining and engineering, of medicine and of law. The entire property of the university is estimated at $1,586,000. Among the other colleges are the College of St. Augustine (Episcopal), at Benicia, Franciscan College, at Santa Barbara and the University of the Pacific, at San Jose. There are reported 2 universities, 17 colleges, 5 academies, 1 school of medicine and 3 schools of theology. In 1875, Col. James Lick presented $700,000 to the University of California for an observatory. The number of libraries was 1617; newspapers, 201; church edifices, 532; church organizations, 643.

Growth in Population.—Humboldt, in his essay on New Spain, estimates the population of Upper California in 1802 to have been: Converted Indians (Roman Catholic missions), 15,562; other classes, 1300; total, 16,862. In 1831 the estimated population was 23,025. At the close of the Mexican war there were 15,000 Americans and Californians. The immigration up to the close of 1849 was estimated at 60,000 Americans and 20,000 foreigners. The United States census in 1850 (with the returns partially destroyed) reported a population of 97,574; 1860, 379,994; 1870, 560,247. Of the 350,416 natives of the United States, 169,904 were born in California; 11,931 persons of Californian birth were residing in other States. The number of the foreign born was 209,831, of whom 48,826 were Chinese. Every State and Territory of the Union and 40 foreign countries have contributed to make up the cosmopolitan population of the Golden State.

Cities and Towns.—Sacramento, the State capital, on the river of the same name, 120 miles from San Francisco, has a large river trade and is a centre of distribution for the mining districts. Population, 16,283. San Francisco, having a population of 175,000, contained but 150 inhabitants thirty years ago, although it has been settled for a century. The Spaniards built a mission there in 1776. The early buildings were of sun-dried bricks, with walls four feet thick. In 1849 the population reached 5000, and the city was incorporated in 1850. The succeeding years have developed it into a metropolis which astonishes alike the London cockney and the miner, whose visits to "Frisco" are the great events of his life. The early shanties have given place to public and private buildings of the most substantial and elegant character. Six times the city has been swept by fire, and earthquakes now and then give the buildings a shaking. There are very extensive manufactories for woollen goods, machinery, etc. Direct lines of steamers run to China and Japan. The commerce of this port is now surpassed only by that of New York and Boston, and the City of the Golden Gate is destined to be one of the greatest cities of the world. Oakland is built in a magnificent grove of oaks on the main shore of the bay, directly opposite to San Francisco. It is the seat of the Asylum for the Deaf and Dumb, the State University and other important educational institutions. Population, 10,500. The other important towns are Stockton (population 10,066), San Jose (9089), Los Angeles (5728) and Marysville (4738).

Government and Laws.—For a time after the territory was purchased justice (or injustice) was administered by the alcaldes according to the laws of Mexico. Congress failed to organize a territorial government with sufficient promptness, and June 3, 1849, a proclamation was issued calling a convention to organize a State constitution. The convention met Sept. 1; the constitution was adopted Nov. 13. State officers are elected biennially. The legislature is composed of 40 senators and 80 assemblymen. There are a supreme court with 5 judges, elected by the people, 17 district courts, and a county court for each county.

History.—Upper California was discovered in 1538 by Castillo, a Spanish navigator. In 1578 Sir Francis Drake visited it, and gave it the name of New Albion. The Spaniards planted the first colony in 1768, and the first mission at San Diego was established by the Franciscan monks. In 1822 the Spanish power was overthrown during one of the numerous Mexican revolutions. The territory was purchased from Mexico by the United States in 1847 for $15,000,000. On the 9th of September, 1850, California, without ever having been under a territorial government, was admitted into the Union as a State.

CONNECTICUT.

Situation and Extent.—Connecticut is bounded on the N. by Massachusetts, E. by Rhode Island, S. by Long Island Sound and W. by New York. It is situated between latitudes 41° and 42° 3′ N. and longitudes 3° 15′ and 5° 10′ E. from Washington, or 71° 50′ and 73° 45′ W. from Greenwich. The extreme length is 100 miles and the breadth 70 miles; area, 4750 square miles, or 3,040,000 acres.

Physical Features.—*Surface.*—The mountain chains of the States to the north are continued through Connecticut in four ranges of high hills. On the west is the Housatonic range, which stretches across Litchfield and Fairfield counties. Mount Tom is one of its most noted peaks. The Green Mountains, extending from Vermont, terminate in West Rock, a bold bluff 400 feet high, near New Haven. Mount Carmel, 800 feet high, and called "The Sleeping Giant," is a conspicuous landmark for vessels entering New Haven harbor. Farther east is the Mount Tom range, which includes the Talcott Mountains (890 feet high), Farmington and Meriden mountains (the latter 1000 feet high), and terminates at East Rock, which has an elevation of 370 feet. The Lyme range, east of the Connecticut River, separates its water-shed from that of the Thames. Bald Mountain is the highest peak. *Rivers and Harbors.*—The Connecticut, which in the Indian tongue signifies "Long River," rises in the mountains on the Canadian border, separates New Hampshire and Vermont, flows the whole width of Massachusetts and Connecticut and empties into Long Island Sound. It is more than 400 miles long, sometimes attains a width of 1000 feet, and is navigable for steamboats to Hartford. Steep and rocky hills bound this water-course from its mouth to Middletown, 30 miles. From thence to Mount Holyoke, 53 miles, is a wide and level basin, which is overflowed by the spring freshets and presents the appearance of an inland sea. The water has been known to rise 30 feet at Hartford. The Housatonic River, which drains Western Massachusetts and Connecticut, is navigable for sloops from its junction with the Naugatuck, at Derby, 10 miles above its mouth. The Thames, formed by the union of the Quinnebaug, the Shetucket and the Yantic, can be ascended by large vessels to Norwich, 14 miles. It empties into New London harbor, which is wide, deep and never frozen. New Haven bay is shallow; a channel 15 feet deep has been dredged through the bar. This harbor boasts the longest wharf in the United States (3943 feet). The channel of Stonington harbor has a depth of 12 feet.

Soil and Climate.—The valley of the Connecticut is the richest agricultural section of New England. The alluvial deposit left by the spring overflow is a fertilizer producing the largest crops. The predominant soil is a strong and fertile argillaceous loam. Back of the alluvial

meadows are river-terraces. Professor Hitchcock noted one in Glastenbury 174 feet high, with a soil ranging through loam, fine sand, sand and coarse gravel. Along the coast much of the land is sandy and unproductive, but there are some flats of marine alluvial very fertile and deep. In the north-west is an elevated and broken region, with a soil cold and sterile, but well adapted for grazing. Large quantities of milk are sent down daily for the New York market. The climate of the sea-coast and the Connecticut Valley is mild and salubrious. In the hill-country of the north-west the winters are much more severe and the quantity of snow greater. The mean temperature at New London is 47.07°; at Litchfield, 44.68°; at New Haven, 50.82°; for the whole State, 49.62°. The isothermal lines are: For the spring, 45°; summer, 70°; autumn, 50°–52°; winter, 25°–30°; mean, 47°–50°.

Agricultural Productions.—There were at the last census 25,423 farms, averaging 93 acres. Value of farms, farm implements and live-stock, $145,033,019; value of farm productions, $26,482,150; forest products, $1,224,107; orchard products, 535,594; value of the nine staple crops, Indian corn, wheat, rye, oats, barley, buckwheat, potatoes, tobacco and hay, in 1873, $19,230,255.

Manufactures.—The many small streams furnish abundant water-power, which the proverbial thrift and ingenuity of the people early turned to good account. The first iron-furnace was built in 1779, at Stafford, for the manufacture of hollow-ware, cannon, cannon-shot, etc. The value of manufactured products in 1810 was $7,771,928; in 1850, $47,114,585; 1860, $81,924,555; 1870, $161,065,474. The number of establishments in the last named year was 5128; hands employed, 89,523. No other State has taken out so many patents in proportion to population. Connecticut makes 89.45 per cent. of all the clocks in the Union. It ranks first also in hardware (value of product, $12,111,034) and in India-rubber ($4,239,329). It takes the second place in sewing-machines ($3,619,000) and in silk goods ($3,314,845); the third place in woollen goods ($17,365,148) and in edge-tools and axes ($939,911). In cotton goods it ranks fifth ($14,026,334); and in the total of manufactures eighth.

Minerals and Mining.—Extensive beds of iron ore are found in Salisbury, Canaan, Cornwall and other parts of Litchfield county. The copper mines of Simbury were worked prior to the Revolutionary war, and later the abandoned shafts were used for the State-prison. Bristol copper mine has also produced largely. Lead has been found near Middletown, antimony in Glastenbury, plumbago in Cornwall, cobalt at Chatham. The freestone quarries furnish the brown-stone fronts of New York city. There are immense limestone quarries in the Housatonic Valley. Pure white marble is quarried in Washington and a clouded marble at Milford. The number of mining establishments in 1870 was 20; hands

employed, 1507; value of products, $1,227,400. Two mineral springs in Stafford were places of resort for persons afflicted with nervous diseases as early as 1765.

Commerce and Navigation.—Connecticut has five customs districts, to which 807 vessels belonged at the last report. Value of exports, $417,355; imports, $1,203,898; vessels cleared for the foreign trade, 1002; entered, 1477; for the coastwise trade, cleared, 494; entered, 1092; number of vessels built, 41. The cod and mackerel fisheries are carried on extensively; 1128 persons were employed in fishing, and the catch was valued at $1,227,400.

Railroads.—The State has 897 miles of railroad, which is one mile for every 5.4 square miles of territory and for every 632 inhabitants. Cost of railroads and equipment, $74,074,037; cost per mile, $55,448; receipts, $10,544,810; receipts per mile, $11,755; receipts to each inhabitant, $18.59; net earnings, $3,691,685; number of railroad companies, 22.

Public Institutions and Education.—The State Prison at Wethersfield contains 232 cells. The labor of the convicts more than defrays the expenses of the institution. There is a State Reform School for boys at Meriden and an Industrial School for girls at Middletown. The American Asylum for the Deaf and Dumb at Hartford, founded in 1816, is the oldest of the kind in the country. Pupils from all New England are supported in it by their respective States. The Retreat for the Insane, at Hartford, founded in 1822, has received more than 5000 patients. The General Hospital for the Insane, at Middletown, incorporated in 1866, will accommodate 450 patients. It cost, exclusive of land, more than half a million of dollars. A School for Imbeciles has been opened at Lakeville. There are hospitals, in part supported by the State, at Hartford and New Haven. The early school system of Connecticut was the best in the country. A school fund was established by the sale of lands in the Western Reserve of Ohio. This fund now amounts to more than two millions of dollars. The amount received during the last school-year from all sources was $1,503,617; number of children of school age (4 to 16 years), 131,748; teachers, 2477; public schools, 1638. In no other State is the proportion of college students to the total number of inhabitants so large. On the catalogues of the three colleges were the names of pupils coming from 30 States of the American Union and from 6 foreign countries. Yale College is a great university, with the faculties of arts, science, theology, medicine and law. It has 82 instructors and more than 1000 students. The funds of the institution are $1,312,244 (for the undergraduate department). The Sheffield Scientific School, which received the land-scrip from Congress for an agricultural college, has a property valued at $614,000. There were 248 students in 1874–5. The Yale Divinity School (Congregational) has buildings valued at $320,000, and its whole endowment is

more than $600,000. The law and medical departments have also largely increased their funds. Trinity College, at Hartford, having sold its former site for a State capitol, is about to lay out the finest college park and to erect the finest college buildings in America. Wesleyan University, at Middletown, established in 1831, has already more than 1000 alumni. In the same city is the Berkeley Divinity School (Episcopal). The Theological Institute of Connecticut (Congregational) has been removed from East Windsor to Hartford. The State Normal School at New Britain affords to teachers of both sexes an excellent professional training. There were 71 newspapers and periodicals in 1870, and 902 church edifices.

Population.—The early population was of pure English origin, but the demand for labor in the factories has brought in a large percentage of foreigners. In 1670 the number of inhabitants was 15,000; in 1756, 131,805; at the beginning of the Revolutionary war, about 200,000. Even before that period the tide of emigration had begun to set toward Dutchess and Columbia counties, on the east bank of the Hudson River, which were then "the West." People from Connecticut also settled Vermont and New Hampshire along the line of the Connecticut River. The population at successive decades has been: In 1790, 237,946; in 1800, 251,002; in 1810, 261,942; in 1820, 275,148; in 1830, 297,675; in 1840, 309,978; in 1850, 370,792; in 1860, 460,147; in 1870, 537,454. Of the last number, 423,815 were native and 113,639 foreign born; of the residents, 350,498 were born in the State; 136,630 natives of Connecticut were residing in other parts of the Union. The density of the population (113.15 to the square mile) is greater than in any other of the States, with the exception of Massachusetts and Rhode Island.

Cities and Towns.—There are nine incorporated cities. New Haven, on the bay of the same name, 74 miles from New York, is a rapidly-growing city. It has a considerable coasting trade. The manufactures are very various. There were formerly more than fifty carriage factories. Besides Yale College, there are several thriving educational institutions. Five railroads centre here. Four daily newspapers are published. The number and magnificence of its shade-trees has given to New Haven the title of "the Elm City." Population, 50,840. Hartford, the sole capital of the State since 1873, is at the head of steamboat navigation on the Connecticut River. The stream is crossed by a bridge 1000 feet long. An immense tobacco trade is carried on. The insurance and book-publishing interests are very large. Among the famous manufactures are Colt's pistols, Sharp's rifles and Cheney Brothers' silks. There are 4 railroads, 3 daily newspapers and 40 religious societies. A new State-House, to cost $1,500,000, will be completed in time for the Centennial. Population, 37,180. Bridgeport (population 18,969) is the third city of the State. It has grown up almost entirely on the manufacture of sewing-machines,

carriages, iron, etc. Norwich (population 16,653) is beautifully situated on the Thames, and is the steamboat terminus of one of the great Boston and New York lines. Waterbury (population 10,826), on the Naugatuck River, makes clocks, buttons, and a great variety of brass-ware. New London is again reviving the whale-fishery, which was once so important. Middletown, on the Connecticut River, which has here 10 feet depth of water, is a place of considerable river trade. The public and literary institutions located here have been mentioned. Meriden (population 10,495) claims to have the largest Britannia ware factory in the world. New Britain (population 9480) has very extensive hardware and hosiery establishments.

Government and Laws.—The legislature consists of a senate of 21 members and a house of representatives of 247 members. The governor (salary $2000) and other executive officers are chosen annually. The supreme court of errors consists of five judges. The superior court consists of the five supreme court judges and six other judges. Each has $3500 salary. There are courts of common pleas in the four most populous counties. Justices of the peace are elected in every town.

History.—The Dutch of the New Netherlands first explored the Connecticut River. They erected a fort in 1633. In 1636 colonists from Massachusetts settled along the river. Two years later, New Haven was settled under Davenport, who was the leading minister of this colony, as was the Rev. Thomas Hooker of the colony at Hartford. The royal charter was saved by being hid in the "charter oak" when Sir Edmund Andros tried to get possession of it, in 1687. Connecticut did efficient service in the Revolution under Governor ("Brother Jonathan") Trumbull.

DELAWARE.

Situation and Extent.—Delaware is bounded on the N. by Pennsylvania, on the N. E. and E. by Delaware River and Bay and the Atlantic Ocean, on the S. and W. by Maryland. It is situated between latitudes 38° 28′ and 39° 50′ N. and longitudes 1° 10′ and 1° 55′ E. from Washington, or 75° 5′ and 75° 50′ W. from Greenwich. It is 93 miles long from north to south, and varies in width from 12 to 38 miles; the area is 2120 square miles, or 1,356,800 acres. The boundary-line between Pennsylvania and Delaware is the segment of a circle, with a radius of 12 miles, the centre of which is at New Castle. This boundary was determined by Mason and Dixon in 1763 [see MARYLAND], and the name of "Mason and Dixon's line" is still retained.

Physical Features.—*Surface.*—The northern section is of a primary rocky formation. Hills of a beautifully-rounded outline rise to a height of several hundred feet above tide-water. The creeks run through deeply-cleft valleys with rounded or abrupt rocky sides. Below this pri-

mary region is a comparatively level country. A table-land not more than 75 feet high extends through the peninsula and slopes gently toward the east and west. In the swamps and morasses several small streams have their rise, which empty into the Delaware and the Chesapeake. Along the Maryland line is a cypress swamp containing 50,000 acres and furnishing valuable timber; it is infested with poisonous reptiles. *Rivers.*—The Delaware River, navigable for the largest vessels, washes the eastern shore. Brandywine Creek rises in Chester county, Pennsylvania, and unites with Christiana Creek near Wilmington. It is forty miles long and navigable 13 miles for vessels drawing six feet of water. Duck Creek forms the boundary between Kent and New Castle counties, and the Mispilion River the boundary between Kent and Sussex. The Murderkill, Indian and Broadkill Rivers flow into Delaware Bay; the Rocomoke, Nanticoke and Choptank run through Maryland into the Chesapeake.

Soil and Climate.—Along the Delaware River are rich clay lands. Newcastle county contains almost every variety of soil to be found east of the Alleghany Mountains—jagged hills, broad plains, extensive meadows, swamps and marshes. A green sand stratum, averaging 21 feet in thickness, furnishes an abundance of marl for fertilization. In the northern part is a clayey soil, and a vegetable mould in the marsh-lands. Sandy soils prevail extensively in Kent and Sussex. Hundreds of acres of the swamp and submerged lands along the Delaware River have been reclaimed by drainage. More than 1100 distinct species of flora have been enumerated in New Castle county. The climate is modified by the sea-breezes which sweep across the whole peninsula. The isothermal lines which cross Delaware are: Spring, 55°; summer, 75°; autumn, 55°; winter, 35°; annual mean, 55°. Observations at Newark show a mean annual temperature of 53°.

Agricultural Productions.—There were in 1870 1,052,322 acres of farm land, of which 698,115 acres were improved; average size of farms, 138 acres. Value of farms, farm implements and live-stock, $52,171,837; value of farm productions, $8,171,667. The value of the Indian corn, wheat, rye, oats, potatoes and hay-crops of 1873 was $3,727,930. In 1874 there were 20,000 horses, 4000 mules, 31,700 oxen and other cattle, 24,900 milch cows, 32,200 sheep, 48,200 hogs. Immense quantities of fruits are sent to the Northern markets. From three to four million baskets of peaches are shipped annually. The shipment of strawberries in 1874 was 7,470,400 quarts.

Manufactures.—The first cotton factory was built in 1795. As early as 1814, Dupont's powder-mills made 15,000 pounds of powder per week. In 1817 the Messrs. Gilpin established the first manufactory in America for making paper by machinery in continuous rolls. There were 800 manufacturing establishments in 1870, employing 9710 hands and

producing a value of $16,791,382. Among these were 26 iron-mills, 6 cotton-factories, 103 flour-mills (annual product, $2,067,401), 10 tanneries, 80 saw-mills (annual product, $405,041).

Commerce and Navigation.—The ocean shore of Delaware consists of long sandy beaches, affording no good harbors or offings. The Delaware Breakwater was constructed by the United States government as a shelter for vessels. It consists of a surf-breaker 2748 feet long and 15 feet above low-water mark, and an ice-breaker, toward the Delaware River, 1710 feet long. The cost was more than $3,000,000. A ship-canal connects the Delaware and Chesapeake Bays. It was completed in 1829, at a cost of two and a quarter millions of dollars. The length is 16 miles, width 66 feet, depth 10 feet. For four miles the channel is cut through a hill 90 feet high. A new company was chartered in 1873, to construct a tidal canal, navigable for the largest class of vessels that now enter Baltimore harbor. The distance is 32 miles, which can be traversed in 5 hours, thus bringing Baltimore by water 225 miles nearer New York and the Eastern markets. A million and a half tons of coal were shipped from Baltimore to the East in 1873, and the amount would be largely increased by a canal. The number of sailing-vessels is 170; steamboats, 15; total vessels of all kinds, 196; tonnage, 15,633; vessels cleared in 1873, 9; vessels entered, 3; imports, $12,516. Seven steam-vessels, having a tonnage of 9550 tons, were built at Wilmington in 1873. The State has but one customs district. The number of national banks is 17.

Railroads.—In 1844 Delaware had 39 miles of railroad. In 1873 there were reported 264 miles (being one mile to every 500 inhabitants and to every 80 square miles of territory); cost per mile, $18,815; receipts, $666,801 ($3299 to each mile and $5.04 to each inhabitant); total capital account, $3,819,479; cost of railroads and equipment, $3,487,140.

Education.—The State is divided into school districts, and the voters of each district decide all questions relating to the schools. There is no superintendent of public instruction, and the county superintendents, appointed by the governor, have no pay, and consequently few duties. In 1873 the number of schools was 349; pupils, 18,790; school population, 47,825. There is no provision by law for the education of the colored people, but a voluntary association has organized 25 schools to supply the deficiency in part. Delaware College, at Newark, has classical, scientific and agricultural departments. St. Mary's and the Wesleyan Female College, at Wilmington, and Brandywine College, at Brandywine, are flourishing institutions. Delaware has 17 newspapers, of which 3 are daily, 1 tri-weekly and 1 semi-weekly. There are 252 church edifices, with 87,899 sittings.

Cities and Towns.—Wilmington, the chief city, stands on a rising ground commanding an extensive view. The Old Swedes Church was

founded in 1698. A stone meeting-house was built by the "new light" converts of George Whitefield. The mills have been run for the greater part of a century. Extensive new structures have replaced the quaint old buildings. In 1873 the number of new buildings erected was 448; capital employed in manufactures, $12,625,000. Population in 1870, 30,841, of whom 25,689 were born in the United States; 3211 were colored. Dover, the capital, situated on Jones' Creek, has a fine State-house fronting an open public square. Population, 1906 (501 colored). The fruit-canning trade centres here. Smyrna, near Duck Creek, is a place of considerable business. Population, 2110. Other leading towns are New Castle (population 1766), Delaware City (population 1545), Seaford, on the Nanticoke River (population 1308), Lewes, opposite the Breakwater (population 1090), North Milford (population 1150), Georgetown (population 710).

Growth in Population.—In 1790 the number of inhabitants was 59,094 (slaves, 8887); 1800, 64,273 (slaves, 6153); 1810, 72,674 (slaves, 4177); 1820, 72,749 (slaves, 4509); 1830, 76,748 (slaves, 3292); 1840, 78,085 (slaves, 2605); 1850, 91,532 (slaves, 2290); 1860, 112,216 (slaves, 1798); 1870, 125,015 (free colored, 22,794). Population to a square mile, 58.97. The number born in foreign countries was 9136; in the United States, 115,879; in Delaware, 94,754.

Government and Laws.—The legislative authority is vested in a general assembly, which consists of a senate, having 9 members, and a house of representatives, having 21 members. The legislature holds biennial sessions. The governor serves for four years. There are five judges. Ministers of the gospel are not allowed to hold any civil office. There is no State-prison; criminals are confined in the county jails. The whipping-post and the pillory are still in vogue. The State debt, January 1, 1875, was $1,250,000.

History.—Delaware was one of the original thirteen States, and the first to ratify the Federal Constitution, which it did by a unanimous vote, December 7, 1787. On the 28th of August, 1609, Henry Hudson discovered the Delaware River, which, however, afterward took its name from Lord Delaware, who entered it in 1610. Colonists from Holland settled near Lewes in 1630, but the Indians destroyed them. In 1638 the Swedes built a fort at the mouth of Christiana Creek. The Dutch of the New Netherlands took possession of the country in 1655, and the English wrested it from them in 1664. These were all bloodless wars. It is believed that not a single life was lost in hostile contests during the whole period of the Swedish dominion. The Indians were friendly, and called the Swedes "their own people." In 1682 William Penn obtained a grant of the territory, and governed it as a part of Pennsylvania. It was allowed a separate general assembly in 1703. The amended Constitution of 1831 is still the fundamental law of the State.

FLORIDA.

Situation and Extent.—Florida, the most southern State of the Union, approaches within one degree of the torrid zone. It lies between latitudes 24° 30′ and 31° N. and longitudes 3° and 10° 45′ W. from Washington, or 80° and 87° 45′ W. from Greenwich. In shape it bears some resemblance to a boot sole upward, with a foot 350 miles long from east to west, and a leg 400 miles long from north to south. The area is 59,268 square miles or 37,931,520 acres.

Physical Features.—*Surface.*—Western Florida is a rolling and hilly country, but there are no mountains. On the northern border is the Okefinokee Swamp. The eastern section is level and sandy, the central contains vast prairies interspersed with lakes and swamps. The Everglades, in the south, are a vast shallow lake containing innumerable islands, covered with a growth of live-oak and water-oak. *Rivers.*—The St. John's River, 400 miles long, is one of the widest in America. For 150 miles it has an average breadth of 1½ miles, and sometimes expands to 6 and 10 miles. It is said to discharge more water than the Rio Grande. Steamboats ascend to Enterprise, 205 miles. The Appalachicola, navigable for 75 miles, is formed by the union of the Chattahoochee and the Flint, rising in Northern Georgia. Other rivers are the Suwanee, Ockloconee, Choctawhatchee, Perdido and St. Mary's. There are many beautiful lakes. Three central counties have a lake surface of 200 square miles, with an average depth of 15 feet. Lake Okeechobee, in the Everglades, is 40 miles long and 30 broad.

Soil and Climate.—The lands have been divided into three classes, swamp, hummock and pine. The swamps, when drained, make exceedingly rich land, which retains its fertility longer than any other soil in the United States. The sugar-cane matures here, and produces four hogsheads of sugar to the acre. Upon the hummock lands there is a growth of underbrush and hard wood. After clearing and ditching, the low hummocks are adapted for the growth of the sugar-cane. The high hummocks yield all the various crops of the country. The pine lands, when cleared, yield 400 pounds of cotton to the acre in many places, where beneath the sandy soil is a subsoil of mould or marl, with fragments of marine shells. The peninsula rests upon a coral formation. Florida boasts of having the finest climate in the world. The average temperature of 1874 was, at Jacksonville, 69.3°; Key West, 76.8°; Lake City, 67.7°; Punta Rassa, 73.5°. In Southern Florida frost is unknown, but the northern section is not safe from it. Jan. 3, 1776, the mercury fell to 26°, and the lime, citron and banana trees about St. Augustine were destroyed. In 1774 there was a snow-storm. In February, 1835, the St. John's River was frozen, and most of the fruit trees were killed. Usually, in the latter part

of January the calla-lily, rose-geranium, camellia and yellow jessamine are in bloom. Green peas and new potatoes are ready for the market by the first of April. May brings the fruits and vegetables of August at the North. The isothermal lines are for the spring, 70° at St. Augustine, 75.8° at Key West; summer, 82° at both places; autumn, 70° and 78°; winter, 55° and 70°; annual mean, 70° and 75°. Florida reverses the order of wet and dry times which prevails in California, and has its rainy season in the summer. *Trees, Animals and Birds.*—Réné Laudonnière, who visited Florida in 1652, wrote: "There groweth in those parts great quantity of pine trees which have no kernels in the apples which they bear. Their woods are full of oaks, walnuts, black-cherry trees, mulberry trees, lentisks, and chestnut trees, which are more wild than those in France. There is great store of cedars, cypresses, bays, palm trees, hollies, and wild vines which climb up along the trees and bear good grapes. There are also plum trees which bear very fair fruit, but such as is not very good. The beasts best known in this country are stags, hinds, goats, deer, leopards, divers sorts of wolves, wild dogs, hares and a certain sort of beast that differeth little from the lion of Africa. The fowls are: turkey-cocks, partridges, parrots, pigeons, ring-doves, turtles, blackbirds, crows, falcons, herons, cranes, storks, wild geese and an infinite sort of wild fowl." To his list of trees may be added the palmetto, oleander, pomegranate, banana, cocoa-nut, lemon and orange. The orange grows spontaneously, but the better varieties are obtained only by cultivation. They can be raised from the seed so as to bear in six years. Blossoms and green and ripe fruit may be seen upon the branch together. A single tree sometimes produces 8000 to 10,000 oranges.

Agricultural Productions.—Market-gardening is very profitable. Early tomatoes, cucumbers, melons, peas, beans, cabbages, turnips, beets, onions, squashes, sweet-potatoes, etc., are sent to the New York and Philadelphia markets. Cotton is the leading staple. Wheat is grown in the northern part. The ramie, or jute, has been introduced. Indigo, castor-beans, rice, arrow-root, tobacco and hemp are successfully cultivated. Florida is the best-timbered State on the continent. It has 30,000,000 acres of forest. According to the census of 1870, there were 2,373,351 acres in farms, of which 736,172 acres were improved; number of farms, 10,241; average size, 232 acres; value of farms, implements and live-stock, $15,664,521; value of farm productions, including betterments, orchards, market-gardens, etc., more than nine millions of dollars. The quantity of Indian corn produced in 1873 was 2,112,000 bushels, value $2,344,320; oats, 109,000 bushels, value $111,180; tobacco, 80,000 pounds, value $26,400. In January, 1874, the number of horses was 16,600; mules, 10,000; oxen and other cattle, 383,600; milch cows, 69,000; sheep, 31,900; swine, 183,400. About 70 per cent. of the popu-

lation are engaged in agriculture. The State Agricultural College has a fund of $100,000.

Manufactures.—Florida has few manufacturing establishments, and those are of small capacity. The number reported by the last census was 659, employing 2749 hands and producing a value of $4,685,403. The fisheries are not largely developed. There were 43 establishments, employing 150 hands and producing to the value of $101,528.

Commerce and Navigation.—The sea-coast of this State is more than 1100 miles long. In 1772 the export of indigo was 40,000 pounds; turpentine, 20,000 barrels. In 1778 the exports were valued at £48,000. There are 7 customs districts, having 229 vessels enrolled; 17 were built in 1873. The number of vessels entered was, foreign, 750, coastwise, 1546; total entered, 2296; vessels cleared, foreign, 770, coastwise, 1546; total cleared, 2316; value of imports, $505,751; value of exports, $2,984,975.

Railroads.—In 1873 the number of miles was 466; cost per mile, $18,455; total capital account, $7,142,000; receipts, $479,000; receipts per mile of railroad, $1267; receipts to each inhabitant, $2.18.

Cities and Towns.—St. Augustine is *the oldest town* on the Western Continent. It was founded in 1565, earlier than Jamestown, Va., by 42 years, and 55 years before the pilgrim settlers of Massachusetts landed on Plymouth Rock. The quaint old town has known more of "battles and of sieges" than any other in America. In 1586 it was bombarded by Sir Francis Drake; in 1611 it was pillaged by the Indians; English buccaneers sacked it in 1665; Gov. Moore of South Carolina captured and burnt it in 1702; Gov. Oglethorpe of Georgia bombarded its fort for 38 days in 1740; the fort and arsenal were seized by the Confederates Jan. 7, 1861; and St. Augustine was retaken by the Federal forces in 1862. The city lies upon low ground, and is protected from the surf by a sea-wall built by the United States government. A sea-wall is put down on a map published in 1665. The Roman Catholic church has a bell cast in 1682. Fort Marion was begun in 1620. In 1648 St. Augustine had 300 householders. The population in 1740 was 2143; in 1870, 1717; estimated population at present, 3500. A writer in 1696 says: "The houses are most of them *old buildings*, and not half of them inhabited." Jacksonville (named after President Jackson) is the largest city below Savannah. It is situated on the St. John's River, 25 miles from its mouth. There are 12 churches, 2 tri-weekly newspapers and a United States court. Fifty million feet of lumber are shipped yearly. Population in 1870, 6912. Tallahassee, the capital, has 2 newspapers. Population, 2023. Fernandina, founded by the Spaniards, has a capacious land-locked harbor. There are 7 churches and 2 newspapers. Population, 1722. Pensacola, founded by the Spaniards in 1698, has a fine harbor, with 24 feet of water

on the bar. Fort Pickens guards the entrance. Population, 3343. Key West is situated on an island of the same name, 11 feet above the sea-level. It has 5 chnrches and 2 newspapers. Here is a United States naval station. Other leading towns are Gainesville (1500), Lake City (2000), Palatka and Appalachicola (1000 each).

Population.—The number of inhabitants in 1830 was 34,370 (slaves, 15,501); 1840, 54,477 (slaves, 25,717); 1850, 87,445 (slaves, 39,310); 1860, 140,424 (slaves, 61,745); 1870, 187,748 (free colored, 91,689); natives of Florida, 109,554; of other parts of the United States, 73,227; of foreign countries, 4967; population to a sqnare mile, 3.17. There were 14,594 natives of Florida residing in other parts of the American Union.

Education.—A nniform system of free schools is provided for by law for all children between the ages of 4 and 21. In 1874 the value of school-honses was $250,000; receipts for school pnrposes, $160,000; pupils enrolled, 27,000; number of teachers, 500. Flonrishing seminaries are in operation at Tallahassee and Gainesville. Florida has 75 libraries (other than private), 23 newspapers, 390 churches.

Government and Laws.—The legislative authority is vested in a senate of 24 members, elected for 4 years, and an assembly of 53 members, elected for 2 years. The legislature meets annually. The governor and lieutenant-governor are elected by the people for a term of 4 years. Other executive officers are appointed by the governor and confirmed by the senate. The salary of the governor is $5000 and that of the lieutenant-governor $2500. The snpreme conrt has three judges, holding office for life or good behavior. There are seven circnits, with jndges appointed for eight years, and a county court for each connty, the jndges of which hold office for a term of four years. The State debt, Jan. 1, 1875, was $1,599,479.

History.—Florida was the first part of the United States occupied by Europeans, and is associated with some of the most thrilling and romantic events in American history. Sebastian Cabot discovered the coast in 1497. Jnan Ponce de Leon, who had the Spanish love for gold and long life, hoped to secure both in the region which was fabled to contain all the treasnres of El Dorado and the "Fountain of Yonth." On Easter Snnday—Pascna Florida meaning "feast of flowers" in Spanish—(not on Palm Snnday, as many anthorities have it), he planted a cross and took possession of "The Land of Flowers" in the name of the Spanish monarch. On a second visit, in 1521, De Leon was severely wounded, and soon after died. He fonnd in Florida the waters of "Lethe" instead of the "fountain of life." An attempt at Spanish colonization, in 1528, was defeated by the Indians. Ferdinand de Soto passed through Florida in 1539. Some French Hugnenots songht refuge there, and 850 of them were massacred "at the bloody river of Matanzas" by a Spanish officer whose re-

ligious zeal impelled him to refuse a proffered ransom of 200,000 ducats. The Spanish supremacy lasted for 250 years. In 1763 the country was ceded to Great Britain. After a twenty years' occupation it was re-ceded to Spain in 1784. After holding it for thirty-five years, Spain ceded the whole to the United States for five millions of dollars, and on the 10th day of July, 1821, the standard of Spain, which had been first raised 309 years before, gave place to "the star-spangled banner." The Seminole war broke out in 1835 [see HISTORICAL SKETCH, p. 125, note]. General Jackson was the first territorial governor. The State was admitted to the Union March 3, 1845, passed an ordinance of secession Jan. 10, 1861, and repealed the ordinance Oct. 28, 1865. A new Constitution was ratified in May, 1868.

GEORGIA.

Situation and Extent.—Georgia is bounded on the N. by Tennessee and North Carolina, on the N. E. by South Carolina, on the S. E. by the Atlantic Ocean, on the S. by Florida, and on the W. by Florida and Alabama. It is situated between latitudes 30° 21′ and 35° N. and longitudes 3° 48′ and 8° 40′ W. from Washington, or 80° 48′ and 85° 40′ W. from Greenwich. The area is 58,000 square miles, or 37,120,000 acres.

Physical Features.—*Surface.*—An extensive plain, of tertiary formation, extends from the Atlantic coast inward for more than a hundred miles, with a gradually ascending slope of from ten to twenty feet. Then there is an abrupt rise of seventy feet, and after twenty miles another similar elevation. The geologists infer that these are old sea-margins. At the head of navigation on the Savannah and Oconee Rivers the swells attain a height of 500 feet. A series of undulating hills rise to the summits of the Blue Ridge Mountains, which are from 1200 to 4000 feet high. Toward the west the descent is precipitous. Between the ranges of hills are fertile valleys, abundantly supplied with water. The southern sections are level and sandy. In the south-east is the Okefinokee Swamp, 180 miles in circumference, which is the haunt of a great variety of noxious and venomous reptiles. *Rivers.*—The Savannah River, 500 miles long, which forms the boundary between Georgia and South Carolina, rises in the Blue Ridge, and is navigable for steamboats to Augusta, 248 miles. Toccoa Falls, on a small tributary, are 186 feet high. The Altamaha River is formed by the union of the Oconee, navigable to Milledgeville, 200 miles, and the Ocmulgee, navigable to Macon, 300 miles. On the western boundary is the Chattahoochee River, 350 miles long, and navigable to Columbus. The Flint River, which unites with the Chattahoochee to form the Appalachicola, is 200 miles in length. The St. Mary's River, rising in the Okefinokee Swamp, separates Georgia from Eastern Florida. The whole State is most abundantly watered, having more than fifty streams,

designated as rivers, which belong to the three great water-sheds of the Atlantic Ocean, the Gulf of Mexico and the Mississippi Valley.

Soil and Climate.—Along the sea-coast are many islands, having a light sandy soil which is especially suited to the production of the famous "sea-island" cotton. Rice plantations occupy the tide-swamps. Georgia is surpassed only by South Carolina in the amount of its rice production. Along the rivers are alluvial lands, growing enormous crops of cotton, rice, sugar-cane, corn, etc. The soil is a blue clay mixed with fine sand and vegetable mould. Fossil bones of extinct mammalia are found in this formation. Portions of the extensive plain back from the coast are of little value for cultivation, but the pine-barrens yield timber, pitch, tar and turpentine. The lands in the western counties, formerly occupied by the Cherokee Indians, are of great fertility. Concerning the climate of Georgia, an English traveller wrote, in 1734: "I think it is the finest climate in the world, for it is neither too warm in the summer nor too cold in the winter. They have certainly the finest water in the world, and the land is extraordinary good; this may certainly be called the land of Canaan." Gov. Ellis, who wrote on the 7th of July, 1757, when the thermometer was 102° in the shade, expressed a different opinion: "I think it highly probable," he says, "that the inhabitants of this place [Savannah] breathe a hotter air than any other people on the face of the earth." The same writer tells us that on the 10th of December the mercury rose to 86°, and on the following day sank to 38°, a range of 48 degrees. Nov. 25, 1775, snow fell to the depth of 18 inches. In May, 1837, hail-stones lay upon the ground for twelve days after the great storm. Most of the whites withdraw to the uplands during the warm season to escape the malaria of the rice plantations. The climate of the interior is cooler and very healthful. The mean annual temperature for 1874 was 65.9° at Savannah and 64.1° at Augusta. The mean distribution of heat, as indicated by the isothermal lines of the chart, is, spring, 60° to 70°; summer, 75° to 82°; autumn, 60° to 70°; winter, 40° to 55°; annual mean, 60° to 67°. The japonica, narcissus, rose and wild jasmine bloom about the middle of February. *Forests.*—In the forests are found the oak, hickory, catalpa, sycamore, birch, walnut, chestnut, cedar, poplar, cypress, gum, ash, tulip, elm, fir, spruce, palmetto, pine, beech, cottonwood, live-oak of the finest quality for ship-building, and ilex trees which Fanny Kemble says are "like those of the Roman Campagna." *Animals.*—Among the animals may be mentioned the black bear, raccoon, weasel, mink, otter, wolf (black and gray), fox (gray and red), panther, wildcat, squirrels (gray, ground, fox, cat and flying), ground-hog, rabbit, opossum and deer. *Birds.*—Audubon noted 508 species of birds in the United States, of which 273 have been found in Georgia. A few of the most common are the bald eagle, hawk, turkey-buzzard, kite, owl, wren, mocking-bird, thrush, gold-

finch, crossbill, bob-o-link, oriole, lark, bluejay, cuckoo, paroquet, ibis, heron, curlew, grouse, plover, flamingo, swan and canvas-back duck. *Reptiles.*—The gopher, terrapin, alligator, lizard, scorpion, viper and rattlesnake are frequently seen. *Fish.*—Rockfish, trout, bass, mackerel, sturgeon, shark, devil-fish, crab, etc., are plenty. Nearly 250 varieties of sea-shells have been noted.

Agricultural Productions.—The great staples are cotton (in which only Mississippi surpasses Georgia) and rice. In 1873 the production of Indian corn was 24,014,000 bushels; wheat, 2,176,000 bushels; oats, 4,800,000 bushels; tobacco, 343,000 pounds. In 1870 the number of acres in farms was 23,647,941; acres improved, 6,831,856; value of farms, implements and live-stock, $129,330,486; value of farm, orchard and market-garden products (including betterments and additions to stock), $80,936,420. Jan. 1, 1874, the number of horses was 116,100; mules, 92,700; oxen and other cattle, 405,300; milch cows, 257,400; sheep, 235,700; swine, 1,497,000. A single acre of Bermuda grass, in 1873, produced nearly 5¾ tons, valued at $20 per ton. The early settlers told marvellous stories about the fertility of their new domain. In 1739 a woman found three grains of rye in a quantity of Indian corn. One of these grains, on the third year, produced 170 stalks and ears, and the three together yielded to her "a bag of corn as large as a coat-pocket." Another woman had "a like bag of beans, all grown out of one bean."

Manufactures.—There were 3836 manufacturing establishments in 1870, employing 17,871 hands; value of products, $31,196,115. The number of establishments for making agricultural implements was 10; boots and shoes, 244; carriages and wagons, 178; cotton, 34; iron, 30; leather, 186; lumber, 539; printing and publishing, 45; wool-carding and woollen goods, 46.

Commerce and Navigation.—Georgia has a sea-coast of 100 miles in a direct line, and more than 400 miles with all its windings. In 1750 the exports were valued at $8897.76; in 1756 they had increased to $74,485.44; in 1759 the export of raw silk amounted to 10,000 pounds. The exports of the colonial period were almost exclusively rice, indigo, raw silk, skins, furs, lumber and provisions. The Indians then gave (according to a fixed schedule of prices) ten buckskins for a gun, five for a blanket, two for a white shirt, two for an axe. For the year ending June 30, 1874, the value of exports was $31,848,402; value of imports, $751,104. Cotton and lumber are almost the only articles exported. The total number of vessels and steamers entered (foreign and coastwise) was 1106; number cleared, 1149. A "union" has been formed to secure a "direct line" to Liverpool. When the dredging operations now in progress are completed, it is expected that vessels drawing 22 feet of water can reach the Savannah wharves at all stages of the tide without ground-

ing. The estimated amount needed for this work for the fiscal year ending June 30, 1876, is $175,000.

Mineral Resources.—Previous to the discovery of the wonderful gold treasures of California, Georgia was the principal source of the precious metal in the United States. The gold-field stretches along the eastern slope of the Blue Ridge for a width of from 15 to 20 miles. The first nugget discovered weighed three ounces. It was found near Duke's Creek, in 1829. A branch-mint was for a time maintained at Dahlonega [see COINS AND CURRENCY, p. 442]. The total gold product has been about 7½ millions of dollars. Iron, copper and kaolin have been discovered in small quantities. There are quarries of white marble. The product of the mines and quarries for 1870 was valued at $49,280.

Railroads.—In 1844 Georgia had 452 miles of railroad. In 1873 the number of miles was 2260; inhabitants to a mile of railroad, 547; square miles to a mile of railroad, 25.7; total capital account, $41,143,172; cost per mile, $23,457; receipts, $7,695,955; receipts to a mile, $4393; receipts to each inhabitant, $6.23; net earnings, $2,265,472.

Education and Public Institutions.—A general school law was passed in 1870. The governor and his council constitute the State Board of Education, in conjunction with the school commissioner, whose salary is $2500 per annum. There are separate schools for white and colored children. The returns for 1874 report 1974 schools (412 for colored children) and 85,184 scholars (colored, 20,786). The University of Georgia, at Athens, chartered in 1795, graduated a class of 9 at its first commencement, May 31, 1804. It has preparatory, academic, law and agricultural departments. The last named has a fund of $243,000, derived from the Congressional land-grant. The North Georgia Agricultural College, at Dahlonega, opened Jan. 1, 1873, is "a part and parcel of the University of Georgia." Other colleges are, Atlanta University (Congregational), Bowdon College, Emory College (Methodist Episcopal, South), Hamilton Female College, Le Vert College, Mercer University (Baptist) at Macon, Monroe and Wesleyan Female Colleges, and the Augusta and Savannah Medical Colleges. The census of 1870 reports 3 universities, 28 colleges, 1 law and 2 medical schools, 1735 libraries, 110 newspapers and 2873 churches. The State Penitentiary, at Milledgeville, has 664 convicts (571 colored). It was established in 1811. The State Lunatic Asylum, at the same place, was opened Dec. 15, 1842. There is an institution for the blind at Macon, and one at Cave Spring for the deaf and dumb.

Growth in Population.—In 1790 the population was 82,548 (slave, 29,264); 1800, 162,101 (slave, 59,404); 1810, 258,433 (slave, 105,218); 1820, 340,433 (slave, 149,656); 1830, 576,823 (slave, 217,531), 1840, 691,392 (slave, 280,944); 1850, 906,185 (slave, 381,682); 1860,

1,057,286 (slave, 462,198); 1870, 1,184,109 (free colored, 545,154). In colored population Georgia ranks first, and in total number of inhabitants twelfth; population to a square mile, 20.42; number of native born, 1,172,982 (933,962 born in the State); foreign born, 11,127; number of native Georgians residing in other parts of the Union, 374,142.

Cities and Towns.—Savannah, the oldest, largest and most wealthy city of the State, is beautifully situated, on a plain 40 feet above the Savannah River, 18 miles from the Atlantic Ocean. It was founded in 1733, and the following year contained 40 houses. In 1820 a fire destroyed 463 buildings, inflicting a loss of more than four millions of dollars. The numerous fine shade-trees have given it the title of "The Forest City." Regular lines of steamers run to Boston, New York, Philadelphia and other ports. Population, 28,235. Atlanta, the capital of Georgia since 1868, is situated 1100 feet above the sea. It has 5 railroads, 3 daily papers, 2 banks, several large manufactories and 28 churches. The city was burned during the civil war. Population, 21,789. Augusta, at the head of navigation on the Savannah River, 230 miles above its mouth, was settled in 1735. It has 4 railroads, 2 daily papers, 6 banks, 21 churches, 4 founderies, and is the centre of a large trade. Population, 15,386. Macon has extensive founderies and machine-shops. It is well built, the houses being mostly of brick. Five railroads centre here. Population, 10,810. The other principal towns are Columbus, at the head of navigation on the Chattahoochee River, population 7401, and Milledgeville, the former capital, population 2750.

Government and Laws.—The legislative authority is vested in a general assembly, consisting of a senate of 44 members, and a house of representatives of 175 members. The legislature meets annually. The executive officers are a governor, secretary of State, comptroller-general, treasurer, surveyor-general, attorney-general and State school commissioners, each holding office for a term of four years. The judicial authority is vested in a supreme court of three judges, 19 circuit courts, and county courts for the most populous counties.

History.—Sir Walter Raleigh was the first European who trod the soil of Georgia. It appears from his diary that he visited the present site of Savannah in 1584 or 1585. In 1717 "all that tract of land which lies between the rivers Altamaha and Savannah" was granted to Sir Robert Montgomery. In July, 1732, a meeting was held in London with a view to establishing a colony in Georgia. Gov. Oglethorpe selected the present site of Savannah for his new town. The colonists spent their first night on shore Feb. 1, 1733. John Wesley preached here in 1736. Whitefield arrived in May, 1738, and established his famous "orphan house" in March, 1740, under the patronage of Lady Huntington. The first general assembly met in Savannah, Jan. 15, 1751. Slavery was at first prohibited;

but the restriction was removed in 1750, and in 1773 the number of slaves was 14,000. Although Georgia was the youngest of the thirteen colonies which declared their independence in 1776, she yielded to none of them in patriotic service during that "heroic age of American history." When tidings came of the first blood shed at Lexington, a few bold patriots broke open the king's magazine and took 500 pounds of powder, of which a part was forwarded to Boston and used by the Americans in the battle of Bunker Hill. Pulaski, Sergeant Jasper, McIntosh, D'Estaing, were among those who sealed their devotion to their country with their life's blood. Savannah was captured by the British, Dec. 29, 1778. For many years there were serious difficulties with the Creek Indians. In 1838 the remnant of the tribe was removed beyond the Mississippi River. An ordinance of secession was passed Jan. 19, 1861. Fort Pulaski, Fort Jackson and the arsenal at Augusta were seized. Gen. Sherman made his march through Georgia in 1864. In July, 1867, an act was passed for the readmission of the State into the Union.

ILLINOIS.

Situation and Extent.—Illinois is bounded on the N. by Wisconsin, E. by Lake Michigan and Indiana, S. by the Ohio River, separating it from Kentucky, and W. by the Mississippi River, separating it from Missouri and Iowa. It is situated between latitudes 36° 59′ and 42° 30′ N., and longitudes 10° 35′ and 14° 40′ W. from Washington, or 83° 35′ and 91° 40′ W. from Greenwich. The area is 55,410 square miles, or 35,462,400 acres. The length from north to south is 378 miles, the greatest breadth 210 miles.

Physical Features.—*Surface.*—Illinois is more nearly level than any of the other States, with the exception of Louisiana and Delaware. In the north-west there are "mounds" rising 250 feet above the level of the surrounding country and 1150 feet above the ocean. The lead region is the most elevated part of the State. There is a gradual descent toward the south as far as the valley of the Big Muddy River, in Jackson county. From this point there is a rapid rise to a range of hills 600 feet high, which cross the southern portion of the State. Along the rivers are bluffs from 100 to 150 feet high. The *prairies* (French for meadows), which cover most of the State, are immense level tracts, with occasional mounds, like islands in the ocean, rising to a height of 50 or 100 feet and covered with a heavy growth of timber. In the centre and the north-east there is a deficiency of wood. Ford county has only six acres of timber to the square mile, which is less than 1 per cent. Randolph county, in the south-west, has 44 per cent. of woodland (280 acres to the square mile), and the whole State has 5,061,578 acres (14 per cent. of its area) in timber. Among the principal trees are the oak (black, white, swamp and scarlet),

hickory, maple, linden, black gum, persimmon, elm (red, white and slippery), ash (black and white), dogwood, birch, beech, sycamore, cottonwood, locust, hackberry, walnut, pecan, willow, cypress, cedar, poplar, pine, etc. *Rivers.*—Illinois is bounded by rivers on three sides. The Mississippi washes its western border for 700 miles. The Ohio and the Wabash afford navigation for the southern and eastern sections. The Illinois is the largest river within the State. It is 500 miles long and navigable for 250 miles. Rock River is 300 miles long. The other principal streams are the Kaskaskia, Little Wabash, Vermilion and Embarras.

Soil and Climate.—Prof. Voelcker says: "I have never before analyzed soils which contain so much nitrogen." The prairies have a black, soft, vegetable mould, sometimes more than four feet thick, and of inexhaustible fertility. In the south-west are small prairies, with a chocolate-brown loam on a subsoil of yellow clay. The alluvial valleys of the Mississippi and the Illinois Rivers are from 5 to 10 miles wide, and produce abundant crops. The State geologist says of Illinois: "It embraces a climatic range of five and a half degrees of latitude, and consequently comprises a greater variety in its zoological and botanical productions than can be found within the area of any other State in the Union." The greatness of the difference will appear when we consider that Cairo, in Southern Illinois, is on the same parallel of latitude as Fortress Monroe, in Virginia, while the northern State line is above the parallel of Boston, in Massachusetts. The mean temperature at Cairo for the year ending Sept. 30, 1874, was 58.4°; at Chicago, 49.5°. The extremes at Chicago, during two years, were 23° *below* zero and 99° above, a range of 122°. The extremes at Cairo were 8° below zero and 101° above; range, 109°. The above temperatures were taken from the report of the chief signal officer for 1873 and 1874. Observations at Peoria for 16 years gave a minimum of —22° and a maximum of 104°; range, 126°. At Sandwich, during 20 years, the minimum was —30°, the maximum 105°; range, 135°. The extensive prairies give free scope to the winds, which blow with great violence. The isothermal lines crossing Northern and Southern Illinois are as follows: Spring, 45°–60°; summer, 70°–75°; autumn, 50°–57°; winter, 25°–37°; mean for the year, 47°–55°.

Agricultural Productions.—Illinois claims to be the "Empire State of the West" in agriculture. She had, in 1870, 19,329,952 acres (53 per cent. of her area) in improved farm lands. New York, which ranks next, has less than 16 millions of acres improved. The total value of farms, farm implements and live-stock was $1,104,839,639; value of farm productions, $210,860,585. In 1873 Illinois stood first in the production of corn (56 bushels to every inhabitant) and in oats. Iowa took the precedence in wheat and in hogs, which Illinois had formerly held. In rye, Illinois was next to Pennsylvania; in hay, next to New York; in

barley, next to California and New York; in honey, first of all the States; in wine and in orchard products, fourth. She had the largest number of horses (3 for every 7 inhabitants), and only Texas surpassed her in cattle. The very abundance of the crops is sometimes a disadvantage to the farmer. In 1873 corn sold for 20 to 25 cents per bushel, and oats for 15 to 18 cents. It took four bushels of corn to pay the freight of the fifth bushel to New York. A single county could load a train of 40 cars every day in the year. The production might be indefinitely increased were there sufficient facilities for transportation. In 1872 a premium offered for the largest production of corn was awarded to a farmer who raised 1313 bushels from a field of 10 acres. Sweet-potatoes, flax, hemp, tobacco and broom-corn are largely produced. The average size of the farms is 128 acres. One farm in Ford county contains 40,000 acres.

Manufactures.—Illinois ranks sixth among the States in manufactures. In 1870 there were 12,597 establishments, employing 58,852 hands; value of annual products, $205,620,672. The leading articles were agricultural implements, boots and shoes, carriages and wagons, saddlery and harness, doors, sashes and blinds, clothing, etc. The product of the flour- and grist-mills was $43,876,775 (next to New York and Pennsylvania). In pork-packing Illinois leads all the rest. The number of hogs packed in 1873–4 was 1,887,328 (more than twice as many as in Ohio, which ranks next); average net weight, 219 pounds.

Mines and Mining.—Mining began at the famous lead mines of Galena about 1821, and the product for the first two decades was 58,694,488 pounds. The yield of 1870 was 159,050 pounds of ore, valued at $182,280. Coal formations underlie 30,000 square miles of Illinois, and the annual product of coal is two millions of tons. There were 356 mining establishments; hands employed, 7504; annual product, $6,968,201.

Commerce and Navigation.—The river and lake system of Illinois gives the State ample facilities for navigation. Chicago has direct commercial relations with foreign nations. The number of vessels clearing to foreign ports for the fiscal year ending June 30, 1874, was 476, tonnage, 139,515; vessels arrived, 212, tonnage, 61,300; number of vessels arriving coastwise, 11,632, tonnage, 3,231,793; number clearing, 11,305, tonnage, 3,142,292; number of crew of foreign vessels, 8210; of coastwise vessels, 207,224. The amount of revenue collected was $1,377,896.03. One-third of the entire commerce of Chicago is in its grain trade. In 1873 the receipt of grain and flour (reduced to grain-bushels) was 98,935,418 bushels, valued at $63,500,000. The receipt of flour was 2,487,376 barrels. For the improvement of Chicago harbor Congress appropriated, from 1870 to 1874, $455,000. The original estimate of the amount needed for the work in hand was $900,000. The number of vessels belonging to this customs district is 743. There are four other ports, Alton, Cairo, Ga-

lena and Quincy, having in the aggregate 124 vessels enrolled. Twenty-one vessels were built in 1873.

Railroads and Canals.—In 1848 Illinois had 22 miles of railroad. In 1874 it surpassed every other State in railroad milcage, leading Pennsylvania, which stands second, by more than a thousand miles. The number of companies was 48; length of railroad, 6759 miles; total amount of stock and debt, $636,458,641; gross receipts, $96,816,868; average receipts per mile of road, $5095; per train mile, $1.32; operating and current expenses, $64,869,979; excess of receipts, $30,570,433. There are nearly ten thousand miles of telegraph lines. A canal from Chicago to La Salle, 96 miles, connects Lake Michigan with the Illinois River, and through that with the Mississippi. Eight million bushels of grain and 50 million feet of lumber have passed through this canal in a single year.

Public Institutions and Education.—The State Penitentiary, at Joliet, has 1300 prisoners. The labor of the convicts makes it self-sustaining. At Jacksonville is an Asylum for the Deaf and Dumb, an Asylum for the Blind, a Hospital for the Insane and an institution for the education of feeble-minded children. The Northern Asylum for the Insane is at Elgin, the Southern Asylum at Anna. The first school in Illinois was opened at Bellefontaine, in 1783. A general law establishing free schools was passed in 1823. The present school system was adopted in 1872 and amended in 1874. White and colored children have equal privileges. The superintendent of public instruction gives the following statistics for the year 1874: Number of schools (public and private), 13,001; teachers. 22,484; pupils, 722,177; expenditures, $7,865,682. The State Normal School had 764 scholars. Attached to it is a museum of natural history, containing 132,200 specimens, valued at $95,000. The Southern Illinois Normal University, at Carbondale, was opened July 1, 1874, in a building which cost $265,000. The Illinois Industrial University, at Urbana, opened in 1868, has 623 acres of ground and a property valued at $760,000. This institution, which comprises separate colleges of agriculture, engineering, natural science, literature, military science and commerce, had 406 students in 1874. The State has 26 colleges, 10 schools of theology, 6 schools of medicine, 2 schools of law, 9 normal schools and 9 seminaries for the higher education of women. The census of 1870 reports 13,570 libraries, 505 newspapers and periodicals, 3459 church edifices.

Population.—Illinois is the fourth State in the Union in the number of inhabitants. The population in 1800 was 2458; 1810, 12,282 (slaves, 168); 1820, 55,211 (slaves, 917); 1830, 157,445 (slaves, 747); 1840, 476,183 (slaves, 331); 1850, 851,470 (free colored, 5436); 1860, 1,711,951 (free colored, 7628); 1870, 2,539,891 (free colored, 28,762). Of the decade between 1850 and 1860 Superintendent Kennedy says, "So large a population more than doubling itself in ten years by the regular

course of settlement is without a parallel." The increase between 1860 and 1870 was 48.36 per cent.; population to a square mile, 45.84. The number of native birth was 2,024,693; born in Illinois, 1,189,503; born in foreign countries, 515,198. Of natives of Illinois, 289,907 were residing in other States. The school census of 1874 reports the number of persons under twenty-one years of age as 1,444,141.

Cities and Towns.—Chicago, the metropolis of the North-west, has had a growth altogether unprecedented in the history of modern cities. In 1831 four vessels arrived; in 1832 there were five small stores and about 250 inhabitants; in 1836 the number of vessels entering the port was 436; in 1837 the census showed a population of 4170. The population in successive decades has been: 1840, 4853; 1850, 29,963; 1860, 112,172; 1870, 298,281. Local authorities estimate the present number of inhabitants at 400,000. The Chicago River affords 25 miles of good water frontage, and the lake shore is made available for docks by the protection of immense breakwaters. The trade of the city is worth more than $500,000,000 annually. The capacity of its grain elevators Oct. 31, 1874, was 15,250,000 bushels. The receipts for the year 1873–4 were 153,540 car-loads and 1053 boat-loads. The amount of grain received into public warehouses was 65,251,188 bushels; number of hogs packed, 1,520,024; number of cattle packed, 21,712. To accommodate the immense trade in live-stock, union stock-yards have been constructed, at a cost of $1,675,000, which cover 350 acres and have a capacity for 118,000 animals. Chicago has been supplied with water from the lake by a tunnel, at an expenditure of upwards of five millions of dollars. In October, 1871, occurred the ever memorable fire, which burned over 2100 acres, destroyed 17,450 buildings (including 32 hotels, 10 theatres and halls and 41 churches), made a hundred thousand people homeless and inflicted a loss of two hundred millions of dollars. However, its citizens find some consolation in asserting that the new Chicago rising out of the ashes of the conflagration is the finest-built city upon the American continent. Springfield, the capital since 1837, was settled in 1819; it has been called "The City of Flowers." The new State-House, begun in 1868, is one of the finest public buildings in America. Springfield was the home of Abraham Lincoln, and a fine monument has been erected to his memory. Population, 17,364. Quincy, on an elevated bluff of the Mississippi River, is the centre of eight railroads. Population, 24,052. Jacksonville is the seat of several State institutions, Illinois College and three female seminaries. Population, 9203. Among the other principal towns are Alton, three miles above the mouth of the Missouri River; Galesburg, the seat of Knox College and Lombard University; Galena, the centre of the lead-mining district; and Peoria, on the Illinois River.

Government and Laws.—The legislative power is vested in a

senate of 51 members and a house of representatives of 153 members. The sessions are biennial. The governor and other executive officers are elected for four years. There is an elective judiciary. The supreme court consists of seven judges, receiving a salary of $4000 per annum and chosen for a term of nine years. The circuit judges are elected for a term of six years. There is a county court for every one of the 102 counties.

History.—Father Marquette, a French Jesuit, visited the Illinois Indians in 1673. Mission stations were established at Kaskaskia and Peoria in 1693, and glowing descriptions were sent home of the beauty of the new country. All the French possessions east of the Mississippi River were ceded to Great Britain in 1763. During the Revolutionary war the British posts were captured by Major Rogers Clark [see HISTORICAL SKETCH, p. 103]. The settlers suffered much from the Indians, who were on the British side in the war of 1812. Illinois was admitted as a State Dec. 3, 1818. The Black Hawk War broke out in 1832. Joseph Smith, the founder of Mormonism, and his brother were murdered by a mob in 1844. Soon after, the Mormons left Nauvoo for a new home beyond the Mississippi, and ultimately settled in Utah. The present Constitution was adopted July 2, 1869.

INDIANA.

Situation and Extent.—Indiana, the smallest of the Western States, is bounded on the N. by Lake Michigan and the State of Michigan (the boundary line being ten miles north of the southern extreme of the lake), on the E. by Ohio, on the S. by the Ohio River, which separates it from Kentucky, on the W. by the Wabash River, and then by a due north line from the town of Vincennes, separating it from Illinois. It is situated between latitudes 37° 47′ and 41° 46′ N. and longitudes 7° 45′ and 11° 2′ W. from Washington, or 84° 49′ and 88° 2′ W. from Greenwich. The State is in the form of a parallelogram, 276 miles long and 140 miles wide, having an area of 33,809 square miles, or 21,637,760 acres.

Physical Features.—*Surface.*—Most of the State is level or gently rolling. Along the Ohio River are ranges of hills, or "knobs," from 400 to 500 feet high. The Ohio Valley, containing as many square miles as the State of Connecticut, is hilly and broken, and was originally covered with heavy timber. The valleys of the White and Wabash Rivers are level, heavily timbered and abundantly watered. In the north there are many swamps. Near Lake Michigan are sand mounds covered with stunted pines. A "terrace topography" shows the action of water in the geological formation. *Rivers.*—The Ohio River washes the State on the south from the Miami to the Wabash, 380 miles by the river windings. The Wabash River, which, with its branches, drains three-fourths of the State, rises near the eastern boundary and runs in a westerly and southerly

course, forming the western boundary for a hundred miles. It is 500 miles long. White River, the principal tributary of the Wabash, is formed by the union of the two streams called the East and West Forks. *Forests.*—The forests afford a great variety of trees, among the most common of which are the oak (white, red, black and burr), hickory, ash, beech, butternut, maple, basswood, locust, elm, mulberry, cedar, poplar, sycamore and cottonwood. Black-walnut trees, from three to five feet in diameter, are found. *Birds.*—Some of the most noteworthy birds are the eagle, turkey-buzzard, hawk, owl, cuckoo, thrush, wren, mocking-bird, cross-bill, red-bird, oriole, meadow-lark, bluejay, pheasant, heron, wood-ibis, snipe, loon and woodcock.

Soil and Climate.—Along all the rivers, except the Ohio, there are rich alluvial deposits from two to three feet deep. Gen. Harrison, the first territorial governor of Indiana, said that the land of the Miami Indians was "the finest country in all the western world." Large crops of corn have been produced for fifty years in succession. Portions of the Ohio Valley are hilly and sterile, but Indiana has an unusually small proportion of waste land. The level country gives free access to the winds, and there are very sudden changes of temperature. Fine weather lasts until near Christmas, and the peach trees blossom in March. The mean temperature at Indianapolis for the year ending Sept. 30, 1874, was 54.4°. The isothermal lines traversing the northern and southern portions of the State respectively are: Spring, 45° to 55°; summer, 70° to 75°; autumn, 50° to 55°; winter, 30° to 35°; annual mean, 50° to 55°.

Agricultural Productions.—In agriculture Indiana takes a leading place, ranking fifth among the States in the value of farm property, and also in the production of Indian corn and wheat. It had, in 1870, 161,289 farms, averaging 112 acres each, and valued, with their implements and live-stock, at $736,257,562. The value of all farm productions was $122,914,302. In 1873 the value of the Indian corn and wheat crops was $52,551,080. Other leading articles of production are rye, oats, barley, buckwheat, peas, beans, potatoes, flax, hemp; tobacco, etc. The number of horses, Jan. 1, 1874, was 649,500; mules, 58,500; oxen and other cattle, 780,300; milch cows, 448,400; sheep, 1,722,500; hogs, 2,496,-700. In view of present facts, it is curious to read a remark of a writer in 1819: "In many places the land is too rich for this grain (wheat), which, though it does not become smutty, is not so good as in the State of New York." Fruit is produced to the value of nearly three and a half millions of dollars annually.

Manufactures.—The manufactured products in 1810 were valued at $159,029. Sixty years multiplied this amount 685 times. In 1870 there were 11,847 manufacturing establishments, employing 58,852 hands and producing articles valued at $108,617,278. A few of the leading

industries were: Lumber, $13,698,859; flour, $25,371,322; woollen goods, $4,212,737; iron, $6,629,747; machinery, $3,871,024; furniture, $3,463,270; cars, freight and passenger, $3,616,068; boots and shoes, $2,699,114.

Minerals and Mining.—A part of the great Illinois coal-field extends into Indiana, covering an area of 6500 square miles. The "block" coal is of very great value for iron smelting; 5000 tons a day are mined. Bog-iron ore exists in large quantities, and excellent limestone and sandstone are quarried. Salt springs are found, yielding a good quality of salt. There are no precious metals. The number of hands employed in mining, in 1870, was 1723; value of products, $1,137,172.

Commerce and Navigation.—Lake Michigan on the north and the Ohio River on the south give to Indiana fine facilities for water communication. The State is traversed also by the Wabash and Erie Canal (340 miles in length, and, next to the Erie Canal, the longest in the United States), which connects Lake Erie with the Ohio River. There is no direct commerce with foreign countries. The State contains 7000 miles of telegraph.

Railroads.—In 1873 there were 3714 miles of railroad; inhabitants to a mile of railroad, 474; total capital account, $193,541,002; cost per mile, $44,274; receipts, $54,279,062; receipts per mile, $6432; receipts per inhabitant, $13.79. In 1844 the State contained only 22 miles of railroad.

Public Institutions and Education.—There are two State-Prisons, the northern at Michigan City and the southern at Jeffersonville, each having accommodations for about 400 prisoners. The State Institute for the Blind, the Asylum for the Insane, the Institute for the Deaf and Dumb and the Reformatory Institution for Women and Girls are at Indianapolis. There is also a Soldiers' Home at Knightsville and a House of Refuge at Plainfield. All the above institutions are supported by the State. A general system of free instruction extends from the primary school to the State University, under the direction of a State superintendent and a State Board of Education. The school fund amounts to $8,618,931. In 1873–4 the number of school-houses was 9202 (465 built during the year); teachers, 12,056; scholars, 465,154. The State University at Bloomington is open to pupils of both sexes. It has departments of law, medicine, military science and civil engineering, in addition to the regular collegiate course. Purdue University received the land-scrip granted by Congress for an agricultural college. This fund amounts to $340,000, and the entire property of the institution is valued at $510,000. Indiana has 6 universities, 16 colleges, 1 school of theology, 3 schools of law, 2 medical and 2 normal schools. There were, in 1870, 5301 libraries, 293 newspapers and periodicals, and 3106 church edifices.

Growth in Population.—The population has multiplied with great rapidity. The per cent. of increase in the decade from 1800 to 1810

was 402.9; from 1810 to 1820, 502.2. In 1800 the number of inhabitants was 5641 (slaves, 135); 1810, 24,520; 1820, 147,178; 1830, 343,031; 1840, 685,866; 1850, 988,416; 1860, 1,350,428; 1870, 1,680,637 (free colored, 24,560); 1,539,163 were of native birth, of whom 1,048,575 were born in the State; 320,836 natives of Indiana were residing in the other States and territories. There were 49.71 persons to a square mile.

Cities and Towns.—Indianapolis, the capital, is situated on an extensive plain almost at the exact centre of the State. In 1820 a dense forest stood where is now the site of this bustling city. It is the seat of several educational and State institutions and the centre of ten railroads. A new State-house is in the process of erection, at a cost of $4,000,000. There are 64 churches and 6 daily newspapers. Population in 1870, 48,244; estimated population in 1875, 80,000. Evansville, the second city of the State, is on the Ohio River. It has extensive manufactories and a large river trade. There are 24 churches and 4 daily newspapers. Population, 21,830. Fort Wayne, named after General Anthony Wayne in 1794, is on the Maumee River and the Wabash and Erie Canal. There are large founderies and machine-shops. Five railroads intersect at this place. Population, 17,718. Vincennes, formerly St. Vincent, on the Wabash River, contained 100 houses in 1816. It was the centre of a large trade with the Indians in furs and skins. The inhabitants were principally of French extraction. Population, 5440 in 1870. Terre Haute, on the Wabash River and the Wabash and Erie Canal, has extensive factories. Population, 16,103. Among the other leading places (Indiana has 27 cities) are Lafayette (population, 13,506), Logansport (8950), New Albany (15,396) and Madison (10,709).

Government and Laws.—The general assembly consists of a senate of 50 members, elected for four years, and a house of representatives of 100 members, elected for two years. They receive $8 per day during the biennial sessions. The governor's salary is $8000 per annum. The supreme court consists of five judges, chosen by popular election and paid a salary of $4000 each. There are 38 circuit judges, also elected by the people, and receiving a salary of $2500. The divorce laws have been so modified that "an Indiana divorce" will be a less frequent panacea for domestic woes hereafter.

History.—The Indiana territory, which was originally the property of the Miami confederacy of Indians, was claimed by France on account of La Salle's discovery of the Mississippi, in 1682. As early as 1702 a mission was established at Vincennes. In 1763 the territory was ceded to the British. The early settlers suffered greatly from the Indians. Gen. Harrison broke the power of the savages by defeating Tecumseh at the battle of Tippecanoe, Nov. 7, 1811. The State was admitted into the Union Dec. 11, 1816. A new Constitution was adopted in 1851.

IOWA.

Position and Extent.—Iowa (meaning, in the Indian tongue, "the beautiful land") is bounded on the N. by Minnesota, on the E. by the Mississippi River, separating it from Wisconsin and Illinois, on the S. by Missouri, and on the W. by the Missouri River, separating it from Nebraska and Dakota. It is situated between latitudes 40° 20′ and 43° 30′ N., and between longitudes 13° 12′ and 19° 38′ W. from Washington, or 90° 12′ and 96° 38′ W. from Greenwich. The State has nearly the figure of a rectangular parallelogram, 300 miles long from east to west and a little over 200 miles in breadth from north to south. Its area is 55,045 square miles, or 35,228,800 acres.

Physical Features.—*Surface.*—The whole State is remarkably level and contains no mountains. Starting from the Mississippi River, the ground gradually rises toward the water-shed between the two great river systems of the Mississippi and Missouri, where the elevation is 967 feet above the level of the Mississippi. The latter river is 444 feet above the sea-level at the mouth of the Des Moines, and the Missouri at Council Bluffs is 1023 feet above the sea. The highest land in the State, at Spirit Lake, near the Minnesota line, has an elevation of 1694 feet. The north-east section is broken and irregular, and the channels of the rivers are cut deep in the rocks. Bluffs from 300 to 400 feet high extend along the Iowa River. Isolated "mounds" in the lead region attain a height of nearly 500 feet. *Rivers.*—The Mississippi River winds along the eastern border for 450 miles, and the Missouri along the western border for two-thirds the breadth of the State. The principal river flowing within the State is the Des Moines, which rises in a group of lakes near the border of Minnesota and runs in a south-easterly direction for 450 miles, forming the southern boundary of Iowa for 25 miles. It is navigable for about half its length. The Iowa River, 300 miles long, is navigable for 80 miles. Its main branch is the Cedar River. About three-fourths of the State is drained by the tributaries of the Mississippi and one-fourth by those of the Missouri. There are many beautiful lakes in the northern counties. *Forests.*—The bottom lands along the rivers are heavily timbered with elm, black-walnut, white and burr oak, poplar, ash, maple, hickory, locust, sycamore, linden, cottonwood, etc. Twenty-five different kinds of forest trees are indigenous to Iowa. About 3,552,880 acres are in timber, giving one acre of woodland to ten acres of prairie. Trees grow with great rapidity when planted on the prairies, and there is said to be more wood in the State now than when it was first settled.

Soil and Climate.—Iowa has a less acreage of barren land than any other State. Nine-tenths of the surface is prairie of a somewhat more rolling and diversified character than that of Illinois. Sandy, gravelly

and clayey soils are found, but a black vegetable mould, from one to two feet thick, is the most common. The summers are usually warmer and the winters colder in the upper part of the Mississippi Valley than in the same latitude along the Atlantic seaboard. A country so largely level, and without trees, is exposed to the full power of the sun in the one season and the wind in the other. Observations continued for 30 years at Muscatine and Iowa City give the highest temperature as 100° and the lowest as 30° below zero, a range of 130 degrees. The mean temperature of spring was 47.44°; summer, 70.37°; autumn, 44.52°; winter, 23.37°; yearly mean, 47.57°. The average rainfall was 44.27 inches; snowfall, 33.23 inches; earliest snow, Oct. 17, 1859; latest snow, April 29, 1851. For the year ending Sept. 30, 1874, the mean temperature at Davenport was 49.5°; at Dubuque, 48.6°. Peach trees blossom from the middle of April to May. Upon the isothermal chart the lines passing through Iowa are: Spring, 50°; summer, 72°–74°; autumn, 42°–52°; winter, 20°–25°; annual mean, 47°–50°.

Agricultural Productions.—In 1873 Iowa stood *first* in the production of wheat, *second* in Indian corn (but emphatically *first* in proportion to population, as Iowa produced 88 bushels for each inhabitant to 56 bushels per inhabitant in Illinois), third in barley and in cattle, fourth in horses and milch cows and fifth in oats. In raising pork, also, Iowa had taken the precedence from Illinois, having more than three hogs for each inhabitant. In 1870 there were in the State 116,292 farms, averaging 134 acres each; value of farms, implements and live-stock, $496,159,156; value of farm productions, $114,386,341; value of orchard products, $1,075,169. Corn was so abundant that it was burned for fuel, as cheaper than coal, and that, too, in a State which has a coal area of 20,000 square miles. Iowa suffers, like the other Western States, for want of cheap transportation. "King Corn" is made bankrupt by excessive travelling expenses.

Manufactures.—The last census reports the number of manufacturing establishments as 6566, employing 25,032 hands. The value of the annual product was $46,534,322. Among the leading industries were: Agricultural implements, 55 establishments, value of products, $829,965 (the value of agricultural implements sold in the State was nearly ten millions of dollars); boots and shoes, 530 establishments, $1,218,480; carriages and wagons, 449 establishments, $1,952,143; flouring- and grist-mills, 502, $15,635,345; lumber, 566 mills, $6,671,700; woollen goods, 68 mills, $1,561,341.

Mines and Mining.—Bituminous coal of an excellent quality is mined in more than 30 counties. The lead mines near Dubuque cover an area of 12 or 15 square miles, and are the most productive of any in the Upper Mississippi Valley. As many as 6,000,000 pounds of ore have been smelted in a year, but the production is falling off. Most of it is consumed in the

West. Iron ore is found, and there are inexhaustible stores of the finest building-stone. The number of persons employed in mining in 1870 was 1628; value of products, $1,063,484.

Commerce and Navigation.—Iowa is an interior State and has no direct foreign commerce, but its river trade is large. There are three United States ports of delivery, Keokuk, Burlington and Dubuque, in which 30 vessels were owned and 3 were built during the year ending June 30, 1874. Navigation upon the Upper Mississippi is impeded by the upper and lower rapids at Rock Island and the mouth of the Des Moines. Extensive improvements are in progress, under the direction of the United States government. The amount expended during the fiscal year ending June 30, 1874, was $396,681.21; amount required for the fiscal year ending June 30, 1876, $560,000.

Railroads.—The first locomotive crossed the Mississippi River into Iowa in 1855. There were 68 miles of railroad in that year, which increased to 2683 miles in the decade ending with 1865. Five great trunk-lines cross the State from east to west. Three of these lines connect with the Union Pacific Railroad at Omaha. The statistics for 1873 were as follows: Miles of railroad, 3728; inhabitants to a mile of railroad, 375; total capital account, $84,174,115; cost per mile, $35,471; receipts, $7,983,988; receipts per mile, $3411; receipts per inhabitant, $5.83.

Public Institutions and Education.—The Penitentiary is at Madison. It had 18 convicts in 1854, 160 in 1867 and 276 at the beginning of 1874. The earnings of the convicts pay all the expenses of the institution. There are hospitals for the insane at Mt. Pleasant and at Independence which have about 650 inmates. At Vinton there is an institution for the free instruction of the blind, and at Council Bluffs one for the deaf and dumb. Three soldiers' orphans' homes are supported by the State. A Reform School for girls has been established at Salem, and one for boys at Eldora, near the centre of the State. Free instruction is provided by law for all between the ages of 5 and 21. The expenditure for schools during the year ending Sept. 15, 1873, was $4,429,455; amount per capita for each person of school age, $6.24; number of schools, 8937; pupils enrolled, 347,572; teachers, 16,648; permanent school fund, $3,294,742. The State University, at Iowa City, founded in 1860, has academical, medical, law and normal departments. It had 620 students in 1875. The State Agricultural College, at Ames, is open for both sexes, and provides instruction in agriculture, horticulture, forestry, stock-breeding, engineering, military science, bee-keeping and "general science for ladies." It has 16 instructors and 263 students. The entire property of the college is valued at $968,899. Iowa College (Congregational) is the oldest in the State. Iowa has 1 university, 21 colleges, 4 schools of theology, 2 schools of law, 3 medical schools and 3 normal

schools. There were, in 1870, 1153 libraries, 233 newspapers and periodicals, 2763 religious organizations, of which 1446 had edifices.

Growth in Population.—The population in 1840 was 43,112; 1850, 192,214 (increase, 345.8 per cent.); 1860, 674,913 (increase, 303.2); 1870, 1,194,020 (increase, 43.5 per cent.). Of the 989,328 of native birth, 428,620 (only 43.3 per cent.) were born in Iowa. The principal immigration was, from Ohio, 126,285; Illinois, 65,391; Indiana, 64,083; Michigan, 13,831; Pennsylvania, 73,435; Virginia, 19,558; Vermont, 12,204; New York, 79,143; Massachusetts, 8929; Wisconsin, 24,309; all foreign countries, 204,692. More than 89,000 natives of Iowa were residing in other parts of the Republic. A State census, taken in 1873, gave the number of inhabitants as 1,251,333. Population to a square mile, 22.7.

Cities and Towns.—Des Moines, the capital, is situated near the centre of the State, at the head of navigation on the river of the same name. It was incorporated as a city in 1857, and has very fine public buildings. The post-office, erected by the general government, cost $200,000, and the county court-house cost $100,000. A new State Capitol is in process of erection, at a cost of a million and a half of dollars. The city has 15 churches, 3 daily newspapers, a law library of 15,000 volumes and a public library of 3000 volumes. Population, 15,061. Dubuque, the largest city and the oldest town in the State, was founded by Dubuque, a French Canadian, in 1788. It has a large trade and is the principal point for the shipment of lead. Five railroads centre here. There are 18 churches and 3 daily papers. Population, 22,151. Davenport, opposite Rock Island, with which it is connected by a bridge built at an expense of a million dollars, is an important grain dépôt. It has several large manufactories, 4 daily papers and 25 churches. Population, 20,550. Burlington, also on the west bank of the Mississippi, has large founderies, mills and pork-packing houses. It is the centre of 4 railroads. There are 15 churches and 2 daily papers. Population, 20,156. Keokuk, "the gate city of Iowa," is the southernmost town of the State. It is situated at the confluence of the Des Moines River with the Mississippi. The rapids above make this the head of navigation for large steamboats. There are 17 churches and 2 daily papers. Six railroads intersect at this point. The College of Physicians and Surgeons is a flourishing institution. Keokuk signifies "the watchful fox," and was the name of a chief of the Sacs and Foxes. Population, 12,766. Council Bluffs is an important town on the Missouri River, opposite Omaha, the terminus of the three rival railroad lines leading from Chicago westward to connect with the Union Pacific. The river is crossed by a railroad bridge 2750 feet long and having eleven spans, which are elevated 50 feet above high-water mark. Besides the railroads mentioned, 3 others centre at Council Bluffs. Population, 10,525. Other important towns are Muscatine (population 6718), Cedar Rapids

(5940), Iowa City, the former capital (5914), Ottumwa (5214), Lyons (4088), Fort Madison (4011).

Government and Laws.—The legislative authority is vested in a senate of 50 members, elected for four years, and a house of representatives of 100 members, elected for two years. There are biennial sessions. The governor (salary $3000) and most of the State officers are chosen for two years. The supreme court consists of four judges (salary $4000), chosen by popular election for a term of six years. There are 13 district courts, the judges of which are elected for four years. Capital punishment was abolished in 1872.

History.—The first white man who visited this region was Father Hennepin, a Roman Catholic priest. He came down the Mississippi River about the year 1680. More than a century elapsed before the first settlement. Dubuque obtained a grant of land about the city now called by his name in 1788. Until 1833 there were no white men but Indian traders and hunters residing within the limits of the great State which 40 years later contained a million and a quarter of souls. This section was first a part of Michigan, and then of Wisconsin, Territory. The separate Territory of Iowa, which also included Minnesota and Dakota, was organized June 12, 1838. Iowa was admitted into the Union, as the twenty-ninth State, Dec. 28, 1846. The present Constitution was ratified August 3, 1857.

KANSAS.

Situation and Extent.—Kansas is bounded on the N. by Nebraska, E. by Missouri, S. by the Indian Territory and W. by Colorado. It is situated between latitudes 37° and 40° N. and longitudes 17° 40′ and 25° W. from Washington, or 94° 40′ and 102 W. from Greenwich. The State has the form of a rectangular parallelogram, 410 miles long from east to west and 210 miles wide from north to south. The area is 81,318 square miles, or 52,043,520 acres.

Physical Features.—*Surface.*—Kansas has no mountains or high hills. The country is a rolling prairie, with a continual succession of gently undulating hills and valleys. There is an average rise of 3 feet to the mile toward the west. The eastern border is 900 feet above the sea. At Fort Atkinson the elevation is 2330 feet, and on the western boundary 3500 feet. Bluffs, in some cases rising to the height of 300 feet, skirt the river bottoms. There are no lakes or swamps. *Rivers.*—The Kansas River, with its principal branch, the Smoky Hill Fork, runs across the whole State and empties into the Missouri at Kansas City. Its other principal tributary, the Republican Fork, 400 miles long, flows in from Nebraska. The total fall is 2000 feet in 400 miles, an average of 5 feet to the mile. The Missouri River washes the north-eastern border of Kansas for 150 miles. Rising among the Rocky Mountains, the Arkansas River

winds through this State for 500 miles. There are numerous other small streams, affording abundance of water for every section. *Timber.*—The alluvial lands along the rivers sustain heavy growths of forest trees, among which are the cottonwood, sycamore, maple, elm, birch, ash, honey locust, willow, oak, hickory, black-walnut, linden, cedar, pecan, pawpaw, mulberry, etc. Trees grow with great rapidity when the prairie fires cease.

Soil and Climate.—Most of the soil is of very great fertility, and has a depth of from 1 to 6 feet. A black vegetable mould, mingled with sand, predominates in the east; in the west the soil is lighter, and contains a larger admixture of sand. Prairie grasses sometimes grow to such a height as to conceal a man on horseback. The "buffalo grass" is short, and especially good for the fattening of stock. The summers are long and temperate; the winters short, mild and dry; but the changes of temperature are very sudden and very great. The winds from the Rocky Mountains, the Great Plains and the Gulf of Mexico all have their turn, and sometimes take it the same day. The hot breath of the south-west wind sends the mercury up to 108°. Observations continued at Fort Leavenworth for thirty years show a mean temperature of 52.81°; maximum, 108°; minimum, 30° below zero; range of variation, 138°; average rainfall, 31.34 inches. At Fort Riley the annual mean was 53.47°; maximum, 106°; minimum,—23°; range, 129°. The monthly increase of heat from March to May is 10°; the monthly decrease from September to November is 12°. The isothermal lines which cross the State are: Spring, 55°; summer, 75°; autumn, 52°–55°; winter, 25°–40°; annual mean, 55 degrees.

Agricultural Productions.—The staple crops are corn, wheat, rye, oats, barley, sorghum, potatoes, hemp, flax, tobacco and hay. In 1873 the average yield of corn per acre (39.1 bushels) was greater than that of any other State except California (41 bushels). Ohio, which ranked third, averaged 35 bushels. The average yield of hay per acre was 1.5 tons; Texas produced the same amount; Oregon and Nebraska stood next, with an average of 1.4 tons. According to the census of 1870, the number of farms was 38,202, averaging 148 acres each. There were 13 containing over 1000 acres. The value of farms, farm implements and live-stock was $117,553,537; value of productions, $28,286,567. On the 1st of Jan., 1874, the number of horses was 220,700; mules, 19,100; oxen and other cattle, 507,200; milch cows, 231,100; sheep, 141,000; hogs, 484,600; total value of live-stock, $31,163,058; an increase of $7,989,873 since the Federal census of 1870. The number of acres under cultivation in 1874 was 3,669,769.

Manufactures.—The numerous water-courses of Kansas afford an abundance of power; but as in all new States, the people have devoted themselves chiefly to the development of the land. The number of man-

ufacturing establishments in 1870 was 1477; hands employed, 6844; value of products, $11,775,838.

Minerals and Mining.—The coal-formations underlie 17,000 square miles; 22 separate beds have been noted, 10 of which are from 1 to 7 feet thick. Salt is found in large quantities. Sandstones crop out in many localities, and limestones are abundant. Among the other minerals are lead, alum, iron ore, etc. Mining gave employment to 351 men, and the annual product was valued at $174,278, in 1870.

Railroads.—Kansas had 40 miles of railroad in 1865. Nearly a mile of additional track was constructed for every working day of the ensuing eight years. The statistics of 1873 were as follows: Miles of railroad, 2379; inhabitants to a mile of railroad, 236; total capital account, $131,802,443; cost per mile, $50,744; receipts, $10,062,437; receipts per mile, $3833; receipts per inhabitant, $17.97; net earnings, $4,123,438.

Public Institutions and Education.—The State Penitentiary, at Leavenworth, had 425 convicts at the close of 1874. There is an Asylum for the Insane at Ossawatomie, containing 115 patients in 1874, an Institution for the Blind at Wyandotte and an Asylum for the Deaf and Dumb at Olathe. A Reform School is also projected. A compulsory education act was passed in 1874, compelling parents and guardians to send children to school for at least twelve weeks of every year. School-directors must see that this law is enforced, under penalty of a fine. According to the latest statistics, the amount of the permanent school fund was $3,017,589; receipts for school purposes, $1,863,101; number of persons of school age, 184,957; number enrolled in public schools, 121,690; number of schools, 4395; teachers, 5000; school-houses, 3133 (703 in 1867); value, $3,408,956. The State University at Lawrence is designed to crown and complete the educational system of the State. There is already a classical and a scientific course, and other departments will soon be added. The Kansas State Agricultural College, at Manhattan, has three principal departments, literary, agricultural and mechanical. It is designed to give an industrial as distinguished from a professional education. The nursery contains 45,000 fruit and forest trees. Each student is required to work one hour daily. The entire property of the institution amounts to $458,782, and the income is $20,000 a year. Other colleges are: Baker University, College of the Sisters of Bethany, St. Benedict's, St. Mary's, Washburne College, at Topeka, and Highland University. There are four normal schools, of which the one at Quindaro is for the training of colored teachers. The last Federal census reported 574 libraries, 97 periodicals, 530 religious organizations, with 301 church edifices.

Growth in Population.—At the beginning of the year 1854 there was not a town or village of whites in all Kansas or Nebraska. With the exceptions of the United States forts and a few missionary sta-

tions, the Indians held full possession. The Territories were organized in May, 1854, and immigrants began to pour in. The settler selected the best spot he could find unoccupied, and "squatter sovereignty" ensured him the title to "the best land in the world" on the payment to the government of $1.25 per acre. In 1855 the population was 8501; in 1860, 107,206 (an increase in 5 years of 1261.09 per cent.); in 1870, 364,690 (a gain in the decade of 239.91 per cent.); in 1873, by the State census, 610,863 (a gain in three years of 67.63 per cent.). The native born in 1870 were 316,007, of whom 63,321 were born in Kansas. Among the immigrants from other States, there were born in Alabama, 718; Arkansas, 2087; California, 207; Connecticut, 1402; Delaware, 307; Florida, 28; Georgia, 789; Illinois, 35,558; Indiana, 30,953; Iowa, 13,073; Kentucky, 15,918; Louisiana, 408; Maine, 1837; Maryland, 2067; Massachusetts, 2894; Michigan, 4466; Minnesota, 708; Mississippi, 529; Missouri, 29,775; Nebraska, 639; Nevada, 32; New Hampshire, 1158; New Jersey, 1845; New York, 18,558; North Carolina, 3612; Ohio, 38,205; Oregon, 99; Pennsylvania, 19,287; Rhode Island, 364; South Carolina, 404; Tennessee, 6209; Texas, 975; Vermont, 2370; Virginia, 9906; Wisconsin, 4128; the Territories, 1048; all foreign countries, 48,392.

Cities and Towns.—Topeka, situated on the south side of the Kansas River, 25 miles above Lawrence, is the State capital. It was first settled in December, 1854. The State-house, of which the eastern wing cost $450,000, is one of the finest buildings west of the Mississippi. The number of inhabitants in 1870 was 5790. Lawrence, so named from the Hon. Amos Lawrence of Massachusetts, was settled in July, 1854. It is situated on both banks of the Kansas River, which has been dammed and affords an extensive water-power. There are several large factories. Five railroads centre at this city. The State University has a beautiful location upon a hill near the river. There are 13 churches and 3 daily papers. There are graded public schools (including a high-school department) attended by about 1200 pupils, and a library containing 3500 volumes. Population, 8320. Leavenworth, on the west bank of the Missouri River, has 6 lines of railroad, 6 daily newspapers and 26 churches. Population, 17,873. The other leading towns are Atchison (population, 7054), Fort Scott (4174), Ottawa (2941) and Wyandotte (2940).

Government and Laws.—The legislative authority is vested in a senate of 33 members and a house of representatives numbering 105 members. There are annual sessions, and the compensation is $3 per day during actual service. The governor (salary, $3000) and other executive officers are chosen for a term of two years. The supreme court consists of three judges, elected by the people, and there are 15 district courts. Kansas is entitled to three representatives in Congress. Twelve per cent.

interest is the legal rate. The receipts of the treasury during the last fiscal year were $995,103; amount of bonded debt, Jan. 1, 1875, $1,341,775.

History.—The valley of the Kansas was discovered in 1719 by M. Dutisne, a French officer sent out by Bienville, the governor of Louisiana. This was a part of the territory ceded to the United States by France in 1803. A bill organizing the Territories of Kansas and Nebraska was passed by Congress May, 1854, in which the Missouri Compromise [see HISTORICAL SKETCH, p. 120] was declared "inoperative and void." The question of freedom or slavery was left to the decision of the inhabitants. Each party strove to obtain the majority. Settlers poured in from the North and the South. Two separate governments were organized. A state of civil war ensued. The motto on the seal of the State of Kansas—"*Ad astra per aspera*"—was justified. At length the Wyandotte Constitution, prohibiting slavery, was adopted, and Kansas was admitted to the Union, as the thirty-fourth State, Jan. 29, 1861. The eastern counties suffered severely from "jay-hawking," which was the term applied to the irregular warfare carried on by the raiders across the border. The summer of 1874 was rendered memorable by the ravages of the grasshoppers. In 17 counties not a bushel of corn was harvested from the 158,000 acres planted. In 12 frontier counties, where settlements were not more than three years old, 23,000 people were left without sufficient food. Large contributions were made in the Eastern States for the sufferers, and it was confidently expected that bountiful crops in 1875 would supply all former deficiencies.

KENTUCKY.

Situation and Extent.—Kentucky is bounded on the N. W. and N. by the Ohio River, separating it from Illinois, Indiana and Ohio, E. by Big Sandy River, separating it from West Virginia, and the Cumberland Mountains, separating it from Virginia, S. by Tennessee, and W. by the Mississippi River, separating it from Missouri. It is situated between latitudes 36° 30′ and 39° 10′ N. and longitudes 4° 55′ and 12° 30′ W. from Washington, or 81° 55′ and 89° 30′ W. from Greenwich. Its greatest length is 400 miles and its greatest breadth 177 miles. The area is 37,680 square miles, or 24,115,200 acres.

Physical Features.—*Surface.*—The south-eastern section is broken by the Cumberland, the Owsley and the Laurel Mountains, whose highest elevations are less than 3000 feet. The Bald Hills, which skirt the Ohio River, rise 325 feet above the level of the stream. From the Big Sandy River west to the 86th parallel of longitude is a rolling upland. Between the Green and the Cumberland Rivers are so-called "barrens." *Rivers.*—The Mississippi borders Kentucky for 80 miles on the west, and the Ohio constitutes its northern boundary for 600 miles. Among the large affluents of the Ohio are the Big Sandy; the Licking, 200 miles long and navigable

for 70 miles, which empties into the Ohio opposite Ciucinnati; the Kentucky, 260 miles long aud large euough for steamboats to ascend 80 miles; Green River, 300 miles long and navigable for two-thirds of its extent; the Cumberland, 600 miles long and uavigable to Nashville, Tenu., 200 miles. The Tennessee, which steamboats ascend to Florence, Alabama, 300 miles, has a course of 70 miles across Keutncky. These rivers abonnd in fish. Salmon weighing 30 pounds and catfish exceeding 100 ponnds in weight have been caught. Reel Foot Lake, 17 miles long, was formed over the low flats along the Mississippi, in 1811, by an earthqnake. *Forests.*—The primitive forests have not yet been entirely cleared away, and Kentucky has an abundance of the best quality of timber. Amoug the trees are the walnut, ash, oak, hickory, elm, gnm, poplar, chestnut, sugar-maple, magnolia, cottonwood, pecan, redbnd, locust, walnut, etc. *The Mammoth Cave.*—This is one of the wonders of the world. It has been mapped ont like the plot of a city undergrouud. There are 226 avenues, 47 domes, 23 pits, 8 cataracts and a large unmber of rivers and lakes, among the most noteworthy of which are the river Styx, 15 to 40 feet wide and 30 to 40 feet deep; Echo River, 200 feet wide and three quarters of a mile loug; Lake Lethe, 450 feet in length and 40 feet in width. Boats navigate these streams and eyeless fish are drawn up out of the black depths. There are crystallizations of gypsum of suowy whiteness and stalactites and stalagmites of marvellous beanty. The temperature, which does not vary winter or summer, is 59°. A hunter discovered the Mammoth Cave in 1809 while following a bear which had taken refuge in it. The cave, with 200 acres of land, was bought for $40. Saltpetre was made in large quantities during the war of 1812. There are four other caverns near, which are a mile in leugth.

Soil and Climate.—The garden of Kentucky is in the blue limestone or "blne grass" region, stretching from the Ohio as far south as Lexington. The Kentnckians say "the sun never shone upon a fairer country." Its soil is "loose, friable and of a deep black or mulatto color." Upou a single acre 1400 pounds of tobacco have been grown. The "barrens," which were formerly considered of little valne, aud giveu to settlers by the State, have been found quite productive. The temperatnre of Kentucky is a pleasant mean between the extremes of the North aud Sonth. The range of the thermometer at Louisville, as reported by the chief signal officer for the years 1873 and 1874, was from 4° below zero to 102° above. There is an annnal mean of 55.23°, which is 1.5° warmer than the city of Washiugton, and about one-fifth of a degree cooler than San Francisco. Snow does not remain long, and cattle range the fields all winter. The isothermal lines which cross the State are, for the spring, 55°–60°; summer, 74°–77°; autnmn, 55°; winter, 35°; mean for the year, 55 degrees.

Agricultural Productions.—The great staple is *tobacco*, of

which Kentucky produced 152,000,000 pounds in 1873, valued at $10,944,000. This was 47.72 per cent. of the whole crop of the United States (372,810,000 pounds), and more than three times the product of Virginia, which ranks second in tobacco culture. Of hemp Kentucky produced 7777 tons in 1870, which was 61.01 per cent. of the whole amount grown in the country (12,746 tons). The hemp crop of 1860 in this State was 39,409 tons. There were, in 1870, 118,422 farms in the State, averaging 158 acres each; total value of farms, implements and live-stock, $383,099,155; value of farm productions, $87,477,374; per capita for farming population, $335; value of orchard products, $1,231,385; forest products, $574,994. The number of horses, in 1874, was 343,900; mules, 83,600; cattle, 380,400; milch cows, 229,400; sheep, 808,100; hogs, 2,008,000. For thoroughbred horses Kentucky is famous. An average price of $955.30 each was obtained for 17 colts at a sale in 1873; one colt brought $5550.

Manufactures.—The census of 1870 reported 5390 manufacturing establishments; hands employed, 30,636; value of products, $54,625,891. The value of some of the leading industries was: Flour, $7,886,734; all iron products, $7,990,013; liquors, $4,532,730; lumber, $4,245,759.

Minerals and Mining.—Twenty of the eastern counties of Kentucky are included in the great Appalachian coal-field, and twelve of the south-western counties in the middle coal-field of the Mississippi Valley. Very valuable iron ores, and also limestone, clay and salt, are found. The annual production of 925 men employed in mining, in 1870, was $509,245.

Commerce and Navigation.—There are two United States customs districts, Louisville and Paducah. On the 30th of June, 1874, there were belonging to these districts 67 vessels, of which 50 were steamers; tonnage, 13,368; vessels built, 31; tonnage, 8288. There is no direct foreign commerce, but the products of the State find their way to foreign markets down the Mississippi River or by the Atlantic sea-ports.

Railroads.—There were 44 miles of railroad in 1844, and 242 miles in 1854. In 1873 the number of miles was 1320; total capital account, $53,210,579; cost per mile, $40,464; receipts, $7,199,993; receipts per mile, $5475; receipts per inhabitant, $5.21; net earnings, $2,019,795.

Public Institutions and Education.—The State Penitentiary at Frankfort has over 600 convicts. There is a school for the blind at Louisville, an Institution for Deaf Mutes at Danville, an Institution for Feeble-minded Children at Frankfort, an Asylum for the Insane at Lexington and another at Hopkinsville. Three of the institutions mentioned above are not "asylums," but schools. The whole school system of the State was reorganized in 1873. The estimated receipts for the year ending July 1, 1873, were $912,426; number of school children, 416,763. A uniform system of schools for colored children was provided for by an act

passed on the last day of the legislative session of 1874. There were, in 1870, 11 universities and colleges, 11 colleges exclusively for women, 5 schools of theology, 3 of medicine, 1 of law and 1 of science. The Kentucky University had, in 1874, five departments, 30 instructors, 558 students and a property valued at $802,254. There were, in 1870, 89 newspapers and periodicals, 5546 libraries and 2969 religious organizations, having 2696 edifices.

Population.—In 1784 the number of inhabitants was 30,000. During 1787 there were 20,000 immigrants, coming chiefly from North Carolina and Virginia. The population in 1790 was 73,077; in 1800, 220,595 (an increase of 203.3 per cent.); 1810, 406,511 (84 per cent. increase); 1820, 564,317 (38.8 per cent. increase); 1830, 687,917 (increase 21.9 per cent.); 1840, 779,828 (13.3 per cent. increase); 1850, 982,405 (25.9 per cent. increase); 1860, 1,155,684 (17.63 per cent. increase); 1870, 1,321,011 (14.3 per cent. increase); population to a square mile, 35.33; number of families, 232,797, averaging 5.67 persons each; native born, 1,257,613; foreign born, 63,398; colored, 222,210; born in Kentucky, 1,081,081; in Indiana, 11,687; Massachusetts, 792; North Carolina, 12,877; Ohio, 19,533; South Carolina, 2204; Tennessee, 49,952; Virginia, 44,121; natives of Kentucky residing in other parts of the United States, 403,126. There were 1080 clergymen, 1552 lawyers, 2414 physicians.

Cities and Towns.—Frankfort, the State capital, laid out in 1787, is situated on both sides of the Kentucky River. It has a large lumber trade. The capitol is a fine building, 300 feet long, 225 feet in height to the dome, and costing $800,000. Daniel Boone is buried in the cemetery. Louisville, at the Falls of the Ohio, 150 miles below Cincinnati, is the chief city of the State and the fourteenth city of the Union in population. It has 95 churches, 7 railroads, and 5 daily newspapers. There are two medical schools and a law school. The Court-house and City Hall are handsome structures. A bridge, 5218 feet long and costing two millions of dollars, spans the Ohio. Louisville is a great tobacco, pork and whisky market. The value of the hogs packed in 1873–4 was $226,947. The whole trade of the city is $250,000,000. In population there has been a rapid growth. The number of inhabitants in 1810 was 1357; in 1870, 100,753—an increase of 7327.7 per cent. in six decades. Lexington, the former capital, was founded in 1775. When the news of the battle of Lexington reached the settlers, they gave the name to their new town. It contains a State Hospital for the Insane and the Kentucky University, the grounds of which include Ashland, the home of Henry Clay. Population in 1870, 14,801. Covington is connected with Cincinnati by a wire suspension-bridge, and is really a suburb of that city. It has many large factories and 25 churches. Population, 24,505. Newport, on the opposite side of the Licking River, is also a suburb of Cincinnati, and contains many fine res-

idences. Population, 15,087. Paducah, with 6866 inhabitants, has a very large river trade.

Government and Laws.—The legislative authority is vested in a senate of 38 members and a house of representatives of 100 members. The governor (salary, $5000) and other executive officers are elected for a term of four years. Four judges, having a salary of $5000 each, constitute the court of appeals. The circuit judges receive $3000 salary. County courts are also established; there are 102 counties. For the first time a general law regulating the sale of intoxicating liquors was passed in 1874.

History.—The honor of being the first white men to visit Kentucky was claimed by a party under the leadership of James McBride, who landed at the mouth of the Kentucky River in 1754 and carved their names with the date upon a tree which was standing 30 years later. They returned, saying that they had discovered "the best tract in North America, and probably in the world." In 1769 Daniel Boone and John Finley, with four others, explored this new region. In 1773 Boone's family removed thither. His wife and daughter were the first white women who ever stood on the banks of the Kentucky. The name signifies "the dark and bloody ground," from the continual wars which the Indians waged with one another upon this middle ground. They received the whites with the bitterest hostility. Many were the victims of the savage tomahawk and scalping-knife. Col. Boone, who styles himself "an instrument ordained to settle the wilderness," wrote, "We passed through a scene of suffering that exceeds description." June 1, 1792, Kentucky was admitted into the Union as the fifteenth State. Aaron Burr attempted to enlist its citizens in his scheme for a Western republic [see HISTORICAL SKETCH, pp. 112, 113]. The Kentucky volunteers won distinction in the war of 1812 and the Mexican war. During the civil war the State remained in the Union, and was the scene of several battles, of which the most important were the battle of Mill Spring, Jan. 19, 1862, and the battle of Perryville, Oct. 8, 1862.

LOUISIANA.

Situation and Extent.—Louisiana is bounded on the N. by Arkansas and Mississippi, E. by Mississippi, S. E. and S. by the Gulf of Mexico, and W. by Texas. The Mississippi River forms the eastern boundary for 450 miles by its windings; the coast-line on the Gulf of Mexico is 1250 miles, and the Sabine River constitutes the western boundary for 200 miles. The State is situated between latitudes 29° and 33° N. and longitudes 12° 5′ and 17° W. from Washington, or 89° 5′ and 94° W. from Greenwich. The area is 41,346 square miles, or 26,461,440 acres.

Physical Features.—*Surface.*—No other State in the Union is so nearly level. The highest elevations do not rise above 200 feet. One-fifth

of the whole surface lies below the high-water mark of the rivers, and was periodically overflowed before the construction of levees. The southern portion is a vast morass. When the French first entered the Mississippi, there were but two trees for a distance of eleven leagues from its mouth, if we are to credit the early chroniclers. Baton Rouge is the first elevated land. Above it the ground is somewhat undulating, and bluffs 100 feet high skirt the river. Toward the west are prairies, and north of these pine barrens. Extensive marshes stretch through the Red River country. There are numerous lakes, of which the largest is Lake Pontchartrain, 40 miles long and 24 miles wide. Along the coast are many bays, which are usually too shallow for the entrance of large vessels. *Rivers.*—The Mississippi flows by and through Louisiana for 800 miles. It has many outlets in flood-time, the most considerable of which are the Atchafalaya, Bayou Plaquemine, La Fourche and Grand River. The Red River, flowing in from Arkansas, is navigable to Shreveport, above which is the "great raft," an immense mass of fallen trees and driftwood. A channel was cut through this raft 40 years ago at an expense of $300,000, but it closed again. Another channel was cut in 1873, involving an outlay of $230,000. The work of destroying raft material and guarding against jams will require an annual expense of from $10,000 to $25,000. The Sabine River is navigable for small steamboats.

Soil and Climate.—The delta of the Mississippi, 200 miles long and 100 miles wide, is the best land in the United States for the production of sugar; the wild cane sometimes grows to the height of 30 feet. In the upland region are prairies, destitute of trees and yielding only moderate crops. The pine barrens have a thin and poor soil. The winters are mild, but the "northers" sometimes produce very sudden changes of temperature. In 1811 the Mississippi River was frozen over. About the first of February the peach and plum trees, peas and strawberries are usually in bloom. The isothermal lines for the several seasons are: Spring, 65°–70°; summer, 82°; autumn, 65°–70°; winter, 50°–55°; annual mean, 65°–70.° The mean temperature at New Orleans, as reported by the chief signal officer for the year ending Sept. 30, 1874, was 69.5; at Shreveport, 66.2 degrees. *Trees.*—Among the forest trees are the ash, beech, birch, catalpa, cypress, elm, gum, oak, hickory, black-walnut, locust, laurel, linden, magnolia, maple, mistletoe, mulberry, myrtle, palmetto, poplar, pine, sycamore, cottonwood, buckeye, pecan, persimmon, etc. The fruit trees are the orange, lemon, lime, fig, pine-apple, olive, pomegranate, peach, plum, apple, etc. *Birds.*—Louisiana is the winter home of may wild fowl that frequent the northern lakes during the summer. Among those specially belonging to the State may be mentioned the eagle, wild turkey, paroquet, swan, halcyon, pelican (with a pouch holding five gallons), flamingo, owl, etc.

Agricultural Productions.—There were, in 1870, 28,481

farms, containing 7,025,817 acres; average size of farms, 248 acres; total value, $91,303,942; value of farm production, $52,006,622. Sugar, cotton and rice are the great staples. The sugar production of the United States was reported as 87,043 hogsheads, of which 80,706 hogsheads (92.72 per cent.) were credited to Louisiana. This State ranked fourth in the production of cotton and third in rice. Wheat, rye, barley and buckwheat are so little cultivated that there are no returns of those crops in the agricultural report of 1873, although they have a place in the census of 1870. The potatoes are less farinaceous than those grown farther north. In January, 1874, the live-stock consisted of 75,700 horses, 78,400 mules, 173,900 oxen and other cattle, 90,700 milch cows, 64,600 sheep, 247,100 hogs.

Manufactures.—There were 2557 manufacturing establishments; hands employed, 30,071; value of products, $24,161,905. Among the articles manufactured were boots and shoes, bricks, carriages and wagons, cars, cotton goods, drugs and chemicals, iron, liquors, lumber, machinery, tobacco and segars. Only two men were engaged in mining, and the value of the annual product was $1200. No other State, with the single exception of Texas, has such small mineral resources as Louisiana.

Commerce and Navigation.—The products of the great States of the Mississippi Valley along 17,000 miles of navigable waters pass through Louisiana on their way to foreign ports. New Orleans ranks sixth among the cities in the value of its imports, but its domestic exports surpass in value those of Philadelphia, Boston and Baltimore combined. During the year ending June 30, 1874, the value of imports was $14,533,-864; of exports, $93,259,299. Among the articles exported were 1,170,-270 bales of cotton (value, $84,467,155), 1,192,597 bushels of corn, 56,081 bushels of oats, 262,959 bushels of wheat, 369,392 barrels of flour, 44,100,-293 pounds of oil-cake, 504,034 pounds of beef, 1,350,626 pounds of lard, 38,159,868 pounds of tobacco. The number of vessels belonging to the two customs districts of New Orleans and Teche was 572, of which 162 were steamers; number of vessels entered, 851 (547 foreign); vessels cleared, 855 (558 foreign); vessels built, 35, of which 11 were steamers. When the United States purchased Louisiana, the exports and imports were valued at less than five millions of dollars, and the revenue accruing to the king's treasury was $120,000. Only 268 vessels of all descriptions entered the Mississippi River, and 265 passed out, during the year 1802.

Railroads.—The State had 40 miles of railroad in 1841 and 80 miles in 1851. In 1873 the number of miles was 539; total capital account, $34,440,020; cost per mile, $62,962; receipts, $2,740,489; receipts per mile, $5010; receipts to an inhabitant, $3.65; net earnings, $1,083,260.

Public Institutions and Education.—The State Penitentiary, at Baton Rouge, contained 410 convicts in 1874. The Insane Asy-

lum, at Jackson, had 186 inmates. The Institution for the Deaf and Dumb has been very much crowded, as a portion of its buildings are occupied by the State University. There is also an Asylum for the Blind at Baton Rouge. The Charity Hospital at New Orleans, founded in 1786, receives from 5000 to 6000 patients every year. Free schools are established by law, open to all children from 6 to 21 years of age, without distinction of color. There is a State superintendent of education elected for a term of four years, with a salary of $5000 per annum. In 1873–4 the statistics were: School districts, 483; school-houses erected during the year, 101; pupils enrolled, 57,433; teachers employed, 524; number of illiterate children, 92,105; amount of State school fund, $1,050,000. The University of Louisiana, at Baton Rouge, has a classical, scientific and commercial course. Other institutions for higher education are: Centenary College, College of the Immaculate Conception, Leland University; New Orleans University, mainly intended for colored people; St. Charles College; Straight University, with classical, agricultural, normal, theological, law and medical departments, open to both sexes and all races; St. Mary's, Jefferson College and the Silliman Female Collegiate Institute. An agricultural college was established in 1874 upon the basis of the land-grant of Congress, the value of which, with accumulated interest, was $327,000. The last census reports 2332 libraries, 92 newspapers and periodicals, 638 church organizations, with 599 edifices.

Population.—The number of inhabitants, in 1712, was 420, of whom 20 were slaves; in 1769, when the Spaniards took possession, about 14,000; in 1803, when purchased by the United States, 60,000; in 1810, 76,556 (slaves, 34,660); 1820, 153,407 (slaves, 69,064); 1830, 215,739 (slaves, 109,588); 1840, 352,411 (slaves, 168,452); 1850, 517,762 (slaves, 244,809); 1860, 708,002 (slaves, 331,726); 1870, 726,915 (free colored, 364,210). Of the population, 665,088 were born in the United States, 501,864 in Louisiana, and 61,827 in foreign countries; 63,139 natives of this State were living in other parts of the Union. The density of population was 17.58 persons to a square mile; population in 1875, 854,490.

Cities and Towns.—Baton Rouge, the former capital (population, 6498) is situated on the Mississippi River, 130 miles above New Orleans. It is the seat of the Louisiana State University and has two daily newspapers. New Orleans is situated on a bend of the Mississippi River (whence the name of the "Crescent City"), 100 miles above its mouth. At high water the river is above the level of the city, which is protected by a levee from 5 to 30 feet high. The limits of the old city under the French and Spanish rule were defined by Canal, Rampart and Esplanade Streets, which are each 200 feet wide. Among the finest public buildings are the Custom-house, United States Mint, the St. Charles and St. Louis Hotels, Municipal Hall and the Church of St. Louis. The Charity Hospital has received

nearly 20,000 patients in a single year. As already noted, New Orleans ranks as the second city of the Union in the value of its exports. The receipts of flour and grain during the year ending Aug. 31, 1874, showed a grand total of 12,295,333 bushels. The population in 1810 was 24,552; 1820, 41,350; 1830, 49,826; 1840, 102,191; 1850, 126,375; 1860, 168,675; 1870, 191,322. The growth is retarded by frequent visitations of the yellow fever during the months of July, August, September and October. The first settlement was made in 1817; a conflagration in 1778 destroyed 900 houses; a city charter was obtained in 1805. The famous battle of New Orleans was fought Jan. 8, 1815 [see HISTORICAL SKETCH, page 119]. Algiers is a flourishing suburb on the opposite side of the river. Carrollton, 7 miles above New Orleans, is a popular place of resort and residence. Other leading towns are Shreveport, the centre of the Red River country trade (population, 4607), Monroe and Nachitoches.

Government and Laws.—The code of Louisiana is made up of materials drawn from the old Spanish laws, promulgated by Don O'Reilly, the Roman civil law, the English common law and the *Code Napoleon*, modified by local enactments. The legislature consists of 36 senators and 170 representatives. The governor (salary, $8000) and other State officers are elected for a term of four years. Five judges constitute the supreme court. The chief-justice receives a salary of $10,000 per annum, and his associates $9500 each. There also district and parish courts. The civil divisions which are called counties in other States take the name of "parishes" in Louisiana.

History.—Robert Cavelier de la Salle first discovered the mouth of the Mississippi River, April 7, 1682. New Orleans was founded in 1718. The territory was ceded to Spain by a secret treaty in 1762. Spain re-ceded it to France in 1800. Napoleon thought it unwise to retain his new possession. To his ministers he said: "The English have despoiled France of all her northern possessions in America, and now they covet those of the south. I am determined that they shall not have the Mississippi. . . . I am inclined, in order to deprive them of all prospect of ever possessing it, to cede it to the United States." Furthermore, the emperor needed money. A treaty was signed, April 30, 1803, by which the whole of the vast region stretching from the Gulf of Mexico to the lakes, and from the Mississippi to the Rocky Mountains was conveyed to the United States for the sum of $15,000,000. Napoleon, pleased with his bargain, said: "By this cession of territory I have secured the power of the United States and given to England a maritime rival who at some future time will humble her pride." Little more than a decade had passed before his prediction was fulfilled by the naval victories of "the last war with England" and by the battle of New Orleans. Louisiana was admitted into the Union as the eighteenth State, April 8, 1812. An ordinance of secession was passed

Jan. 26, 1861. New Orleans was captured by a combined naval and land force of Federals, and May 1, 1862, Maj.-Gen. Benjamin F. Butler took possession of the city. The Red River expedition, in 1864, proved disastrous to the Federals. After the cessation of hostilities the State was governed for a time by martial law, but finally was given over to the civil authorities, the task of "reconstruction," however, being more difficult in this State than in any other.

MAINE.

Situation and Extent.—Maine, the most easterly State of the Union, is situated between latitudes 43° 6′ and 47° 28′ N. and longitudes 10° 3′ and 14° 13′ E. from Washington, or 62° 47′ and 66° 57′ W. from Greenwich. It is bounded on the N. W. by Canada East, N. E. by New Brunswick, S. E. and S. by the Atlantic Ocean and W. by New Hampshire. The extreme length is 302 miles and the extreme width 224 miles. Its outline boundaries are 946 miles in length. The area is 35,000 square miles, or 22,400,000 acres, which is more than the area of all the other New England States combined.

Physical Features.—*Surface.*—The whole surface is moderately hilly, with the exception of the tide-water marshes. In the north-west are high mountain ridges (a continuation of the White Mountains of New Hampshire), with bald rock-summits and heavily-wooded bases. The basin of the Penobscot is irregular and mountainous until it blends with the more level lands of the Aroostook, in the north-east. Mount Katahdin (an Indian name signifying "highest land") is, next to Mount Washington, the most elevated peak in New England; its height is 5385 feet. Mounts Carmel, Saddleback, Haystack, Abraham, Bigelow and Mars Hill are noted landmarks. *Forests.*—The northern part of Maine is an unbroken forest, "just as nature made it," says Thoreau. The woods are so dense that "a squirrel could travel the whole length of the country on the tops of the trees." Those primeval woods are seven times the size of the famous "Black Forest" of Germany. Massachusetts or New Jersey might be lost in the woods of Maine so that "it would need a compass to find them." More than 21,000 square miles are in woodland. Among the trees are the fir, black and white spruce, maple, birch, larch, aspen, cedar, hemlock, elm, black ash, beech, Norway, red and white pine. The forests are the home of the moose (sometimes taller than a horse and weighing 1000 pounds), bear, caribou, wolf, catamount, wolverine, beaver, hedgehog, raccoon, deer, etc. The birds are the bald eagle, fish-hawk, owl, pewee, thrush, sparrow, cuckoo, kingfisher, black duck, blue heron, grouse, loon and many others. *Lakes, Rivers, Bays and Islands.*—No other State has so many natural reservoirs and water-courses. There are 1620 lakes and 5151 streams represented on the State map of Maine. The water-surface

is 3200 square miles. Moosehead Lake, 1071 feet above tide-water, is 38 miles long and 12 wide. Rangley Lake is almost as high (1511 feet) as Itasca, at the head of the Mississippi. Other lakes are Umbagog, Moosetocmaguntic, Chesuncook, Schoodic and Sebago, 50 miles square, which supplies the city of Portland with water. The principal rivers, beginning at the west, are the Saco, rising in the White Mountain region, 95 miles long and 600 feet wide near the falls; the Androscoggin, 157 miles long and draining an area of 2750 square miles; the Kennebec, 155 miles long, draining 5800 square miles, descending 9.1 feet to the mile, navigable to Augusta, 50 miles, where it is 750 feet wide; the Penobscot, draining 8200 square miles, 800 feet wide at Bangor, which is 55 miles from its mouth and at the head of steamboat navigation; the St. Croix, 97 miles long, 500 feet wide, and forming the boundary line between Maine and New Brunswick. The river St. John, which is mainly in New Brunswick, drains 7400 square miles of Northern Maine. The sea-coast is nearly 3000 miles in length, by the windings of the shore, although only about 225 miles in a direct line. The coast is rock-bound and furnishes land-locked harbors, deep enough to float the largest vessels. Casco Bay, on which Portland is situated, is said to contain 365 islands; between 200 and 300 are laid down upon the chart of the coast survey. Mount Desert Island, 15 miles long and 12 miles wide, contains several mountain peaks from 1500 to 2000 feet high, with beautiful lakes near their summits. Hundreds of other islands are scattered along the coast, some just large enough for a loon's nest and others containing thousands of acres.

Soil and Climate.—The Aroostook Valley claims to have the most fertile lands in the New England States, with the possible exception of the valley of the Connecticut. The soil is a deep yellow and very porous loam upon a stratum of limestone. This region is almost unsettled, and lands have been sold for half a dollar an acre. A farmer reports raising per acre 85 bushels of corn, 75 of oats, 400 of potatoes and 980 of carrots. There are alluvial soils along the rivers which are very fertile. Much of the upland is stony and barren. The winters are very long and severe. In the north the ground is covered with snow from the middle of November to the middle of April. There is hardly any spring; summer comes as soon as the snows are melted. Bangor is shut off from navigation for 125 days. The earliest opening of the Penobscot for 50 years was March 21st. There is exemption from frost usually for about three and a half months, from May 31 to Sept. 14. The mean annual temperature at Portland is 43.51°. For the whole State the mean of the thermometer is 41.65°; rainfall, 43.24 inches; snow-fall, 83.02. The isothermal lines are: Spring, 35°–40°; summer, 60°–67°; autumn, 40°–47°; winter, 10°–25°; annual mean, 40°–45°. More than 25 per cent. of the deaths are from consumption. Malarious diseases are almost unknown.

Agricultural Productions.—Maine ranks seventh among the States in the amount and fifth in the value of its hay crop. In 1873 the value of the Indian corn, wheat, rye, oats, barley and buckwheat grown was $4,176,888; value of the hay crop, $14,691,240 (three and one-half times as much as the other six staples). Other leading productions are peas, beans, flax, wool, hops, butter, cheese, maple-sugar, honey, etc. One exhibitor showed 30 varieties of apples at an agricultural fair. Many horses are reared for the city markets. The last census reported the number of acres in farms as 5,838,058; average size of farms 98 acres; value of farms, farm implements and live-stock, $131,128,193; value of productions, $33,470,000. In 1874 there were 78,000 horses, 198,000 oxen and other cattle, 153,500 milch cows, 446,900 sheep and 60,800 swine. The increase in the value of farms during the decade from 1860 to 1870 was $24,273,426. The State land office has been closed, only 146,000 acres of public land being still set apart for settlement.

Manufactures.—This State has more available water-power than any other portion of the earth's surface of equal extent. There have been enumerated 3100 water-privileges, which together afford a power greater than is used by all the manufacturing establishments of Great Britain. As early as 1837, 250 saw-mills were in operation on the Penobscot and its tributaries above Bangor, and two million feet of lumber was the annual product. One tree cut 4500 feet and was worth $90 in the log. The last census reported 1099 establishments for sawing lumber; hands employed, 8506; value of products, $11,395,747. The number of manufacturing establishments of all kinds was 5550, employing 49,180 hands, and producing an annual value of $79,497,521. Cotton has taken the place of lumber as the leading industry. The value of cotton goods was $11,739,781, giving Maine the sixth rank among the States. Manufactures have very largely increased within the last decade. The legislature of 1874 granted charters to 23 manufacturing companies with a capital of $7,130,000. The State law allows any town to exempt from taxation for a term of ten years all manufacturing establishments. Capitalists from other States have taken advantage of this liberal offer. The industrial statistics for 1873, although incomplete, reported 6072 establishments, employing 55,614 hands and producing an annual value of $96,209,136. Among the leading industries were: Boots and shoes, $8,820,986 (more than doubled in three years); cotton goods, $12,151,750; iron, 1,649,630; leather, $3,187,000; paper, $3,041,600; woollen goods, $6,605,292. *Ship-building*, which ceased almost entirely during the civil war, has revived again. Maine was surpassed only by New York in the number of vessels built during 1873–4. From her ship-yards were launched 10 ships, 25 barks, 12 brigs, 206 schooners, 12 sloops, and 9 steamers and 2 barges; total, 276 vessels, of 89,817 tons. *Quarrying.*—Everywhere there is an abundant

supply of building-stone. The Maine granite has no superior in the world. Dressed stone from the quarries of Knox and Lincoln counties is used in the construction of the finest public buildings. The product of 57 establishments, with 733 workmen, was valued at $621,738. Ice was cut for exportation to the value of more than half a million of dollars.

Commerce and Navigation.—There are 14 United States customs districts on the Maine coast. The value of exports for the fiscal year ending June 30, 1874, was $5,372,102; value of imports, $3,628,425. Among the articles exported were 2257 bales of cotton, 32,460 bushels of apples, 6,777,502 pounds of lard, 76,200 pounds of sugar, 7,476,000 feet of lumber. The number of vessels registered was 3221; vessels entered, 3041 (of which 750 were from foreign countries); vessels cleared, 3015 (1489 for foreign countries). Cod- and mackerel-fishing employ 861 vessels and 2000 men. Maine ranks next to Massachusetts in the product of fisheries; value in 1870, $979,610. Lobsters are caught in great numbers. The tide rises 18 feet at Eastport and 8.9 feet at Portland.

Railroads.—A tax is assessed on all railroads whose stock has a market value; the amount of this assessment for the year 1874 was $105,069. The number of miles of railroad in 1873 was 905; inhabitants to a mile of railroad, 702; total capital account, $38,195,948; cost per mile, $40,249; receipts, $4,363,741; receipts per mile, $4822; receipts to each inhabitant, $6.86; net earnings, $1,388,855. The completion of the European and North American Railroad opened an all-rail route from St. John's, New Brunswick, to San Francisco, California. The completion of the railroad to Halifax will materially shorten the length of ocean-travel required for a trip to Europe.

Public Institutions and Education.—The State-prison, at Thomaston, has its expenses nearly defrayed by the labor of the convicts. The Reform School, near Portland, receives boys from 8 to 16 years of age; its expenses were $14,000 in excess of earnings during 1874. There is an Industrial School for girls at Hallowell and there are Orphans' Asylums at Bath and Bangor. The Hospital for the Insane at Augusta usually contains about 400 patients; the receipts for the last fiscal year were $105,192. The United States Marine Hospital and the Maine General Hospital are at Portland. In 1873–4 the number of children registered in schools was 128,134; number of school-houses, 4083; teachers, 5998; amount of permanent school fund, $561,893; expenditure for school purposes, $1,147,242. There are normal schools at Farmington and Castine. Bowdoin College has classical, medical and scientific departments. It numbers Longfellow and Hawthorne among its alumni. Bates College, at Lewiston, educates both sexes. It has a theological department (Free-Will Baptist). Colby University was formerly known as Waterville College. Bangor Theological Seminary is a Congregational institution. The Maine

State College of Agriculture and the Mechanic Arts, at Orono, possesses a property valued at $258,620; it had 121 students in 1874. The census of 1870 reported 3334 libraries, 65 newspapers and periodicals and 1326 religious organizations, having 1102 edifices.

Population.—The number of inhabitants at successive decennial periods has been as follows: 1790, 96,540 (colored, 538); 1800, 151,719 (colored, 818); 1810, 228,705 (colored, 969); 1820, 298,269 (colored, 929); 1830, 399,455 (colored, 1192); 1840, 501,793 (colored, 1355); 1850, 583,-169 (colored, 1356); 1860, 628,279 (colored, 1327); 1870, 626,915 (colored, 1606). The number of foreign born was 48,881; native born, 578,-034; born in Maine, 550,629; natives of Maine residing in other States, 149,205.

Cities and Towns.—Portland, the largest city on the Atlantic coast east of Boston, has an extensive foreign and domestic trade. It is the terminus of the Grand Trunk Railway of Canada, and lines of first-class steamers run to Liverpool and Glasgow during the winter. Five other lines of railroad and eight steamboat lines centre at this city. The Post-Office, Custom-house and City Hall are fine edifices. A great fire, on the 4th of July, 1866, burned 1500 buildings, destroyed nearly ten million dollars' worth of property and made 10,000 people homeless. The burnt district has been rebuilt. Population in 1870, 31,413. Augusta is the State capital (population, 7808). Bangor (18,289), on the Penobscot, is a great lumber port. Lewiston (13,600) and Auburn (6168) have large cotton-mills and boot- and shoe-factories. Biddeford (10,282) and Saco (5755), on opposite sides of the Saco River, are largely engaged in the manufacture of cotton goods. Other leading towns are Bath, Gardiner, Rockland, Calais, Belfast, Ellsworth and Brunswick. Kittery has a United States navy-yard.

Government and Laws.—The legislative authority is vested in a senate of 31 members and a house of representatives of 151 members. The governor is elected annually. His council consists of seven members chosen by the legislature. The supreme court consists of eight judges, having a salary of $3000 each. An annual session is held in each of the three judicial districts. There are trial-terms of court in each county. The prohibitory liquor law has made Maine famous in the temperance reform. During the year 1874 there were 276 convictions under this law, 41 sent to jail and $30,898 dollars in fines collected. White persons are prohibited from marrying Indians or negroes; 487 divorces were granted in 1874. The estimated receipts for State purposes, in 1875, were $1,753,202.

History.—It is asserted that a settlement was made on the St. Croix River in 1604, thus antedating Jamestown and Plymouth. A fort was built on the Penobscot in 1626, and a trading-house at Machias in 1633.

The French considered the region above Kennebec a part of Acadia. Indian attacks gave the early settlers great annoyance. A part of the country was held by the British during the war of 1812. Maine separated from Massachusetts in 1820, and was admitted into the Union as a State. The disputed boundary-line between the United States and British territory was settled by treaty in 1842.

MARYLAND.

Situation and Extent.—Maryland is bounded on the N. by Pennsylvania, E. by Delaware and the Atlantic Ocean, S. and W. by Virginia and West Virginia. It lies between latitudes 37° 53′ and 39° 44′ N. and longitudes 1° 56′ E. and 2° 33′ W. from Washington, or 75° 4′ and 79° 33′ W. from Greenwich. The length from east to west is 196 miles, and the breadth varies from 5 to 120 miles. The whole periphery of the State is 766 miles and the area 11,124 square miles, or 7,119,360 acres.

Physical Features.—*Surface.*—Between the Chesapeake and the Delaware Bays and the Atlantic Ocean is a peninsula containing 5980 square miles. Of this the part belonging to Maryland, comprising 3386 square miles, divided into eight counties, is called the "Eastern Shore." The "Western Shore" comprises another peninsula, lying between the Chesapeake and the Potomac River, and containing 3698 square miles. It includes the whole of six counties and parts of three others. Both the above sections are alluvial. To the north and west is a third district, which is crossed by the ranges of the Blue Ridge and the Alleghany Mountains. Some of the most conspicuous summits are South Mountain, Sugar Loaf, Catoctin, Kittatinny, Rugged and Will Mountains. *Rivers and Bays.*—The Susquehanna, which empties into the head of Chesapeake Bay, is navigable beyond the State line. On the Eastern Shore are the Elk, Chester, Sassafras, Choptank and Nanticoke, of which only the latter two are navigable. On the Western Shore are the Patapsco, navigable for 22 miles, and the Patuxent, navigable for 50 miles. The Potomac, which borders Maryland for 320 miles, is 7½ miles wide at its mouth. Vessels ascend it to a distance of 125 miles. There are falls in the upper waters and the descent is very rapid, being 1117 feet in 213 miles, an average of 5¼ feet to the mile. Chesapeake Bay is 200 miles long, from 7 to 30 wide, covers an area of 2835 square miles and, with its tributaries, drains 70,000 square miles of territory. It is navigable for the largest vessels. Canvas-back ducks are very numerous about the Chesapeake. Sinepuxent Bay, 30 miles long and from 1 to 5 wide, is very shallow, and the 30 miles of Atlantic coast afford not a single good harbor.

Soil and Climate.—The Eastern and Western Shores are low and sandy, with occasional stagnant marshes, which are malarious. Warden says: "Of oats and barley it is stated that an English wagon could carry

away the produce of 10 acres." In the northern part there is a mixture of clay and loam which produces a soil very profitable for tillage. Among the mountains are beautiful valleys, in which luxurious crops are grown. The rainfall is copious (average annual fall for the two years ending Sept. 30, 1874, 44.22 inches). The mean temperature at Baltimore during 1873–4 was 54.3°; extremes (for two years), 2° and 97.5°. The isothermal lines are for the spring, 55°; summer, 72°–75°; autumn, 52°–55°; winter, 30°–35°; mean for the year, 55 degrees.

Agricultural Productions.—Maryland contained, in 1870, 27,000 farms, averaging 167 acres each; value of farms, farm implements and live-stock, $194,072,058; value of productions, $35,343,927; of orchard products, $1,319,405; of market-gardens, $1,039,782. The value of Indian corn, wheat, rye, oats, barley, buckwheat, potatoes, tobacco and hay, in 1873, was $22,382,390. Other leading crops are sweet potatoes, flax, hops and sorghum. Maryland ranks fifth in its tobacco crop. In January, 1874, there were 104,500 horses, 10,700 mules, 125,600 oxen and other cattle, 96,900 milch cows, 133,200 sheep, 256,200 swine.

Manufactures.—Before the war for independence there was but one factory in the State; that was for the manufacture of woollen goods. The last census reported 5812 manufacturing establishments; hands employed, 44,860; value of products, $76,593,613. Among the leading articles in value were: Molasses and sugar, refined, $7,007,857; flouring- and grist-mill products, $6,786,459; clothing, $5,970,713; iron, $6,725,395; cotton goods, $4,852,808; boots and shoes, $3,111,076; copper, milled and smelted, $1,016,500.

Minerals and Mining.—The Cumberland coal is semi-bituminous. Twenty-two mines yielded 1,819,824 tons, valued at nearly two and a half millions of dollars. There were 43 iron mines; value of product, $600,246; 2 copper mines, $71,500; 2 marble quarries, $275,000; total number of establishments for mining, 80; hands employed, 3801; value of products, $3,444,183.

Commerce and Navigation.—In 1790 the exports from Baltimore were valued at $2,027,777. The value of imports in the year 1874 was $29,302,138; exports, $27,692,709. The leading articles of export were tobacco ($5,868,405), Indian corn ($5,287,444), flour ($3,240,967), cotton ($2,669,219), lard ($1,325,636); 1973 vessels entered, 2217 cleared and 104 were built, including six steamers. There are 3 customs districts. Only 5 States surpass Maryland in the amount of foreign commerce. The oyster trade of the Chesapeake supplies most of the markets of the United States.

Canals and Railroads.—It was a favorite idea of Washington that there might be a canal from tide-water to the Ohio River by way of the Potomac. Surveys were made by order of Congress with a view to

this more than fifty years ago. The canal has been built as far as Cumberland, at a cost of $7,000,000. The estimated expense for continuing it to Connellsville (127½ miles) is $20,268,085, averaging $158,887 per mile. A ship-canal connects the Chesapeake and Delaware Bays, and a larger one is projected [see DELAWARE]. Maryland (including the District of Columbia) had, in 1873, 1046 miles of railroad, cost per mile, $54,833; receipts, $15,310,942; receipts per mile, $14,403; receipts per inhabitant, $15.78; net earnings, $5,756,550; total capital account, $58,295,517. By a State law passed in 1874 railroad companies are taxed one half of one per cent. of their gross receipts.

Public Institutions and Education.—The State Penitentiary, at Baltimore, usually contains between 700 and 800 prisoners. The earnings in 1873 were $71,105, a surplus of $5000 over all expenditures. The Hospital for the Insane, established at Baltimore in 1828, was removed to Spring Grove in 1872. An Asylum for the Blind was opened in 1854; 238 patients were treated during the year 1873. The Institution for the Education of the Deaf and Dumb, at Frederick, receives pupils between the ages of 9 and 21 years; it was opened in 1868. Youthful criminals are sent to the House of Refuge, near Baltimore; 411 were received during the year 1873. A House of Correction has been provided for the confinement of those sentenced to brief terms of imprisonment; the new buildings are at Jessup's Station, 14 miles from Baltimore. Free schools are established by law. The number of schools in operation in 1874 was 1742; scholars enrolled, 99,258; teachers, 2555; expenditures for school purposes, $1,354,067. There are 19 colleges, 1 law, 2 medical and 4 theological schools. The Agricultural College has 6 instructors, 130 students and property valued at $210,000. The Medical Department of the University of Maryland was established in 1807. The oldest dental college in the world, it is said, is that at Baltimore, chartered in 1840. There were, in 1870, 3353 libraries, 88 newspapers and 1389 church edifices.

Population.—The number of inhabitants in 1665 was estimated at 16,000; in 1755, 153,564; in 1790, 319,728 (slaves, 106,036); 1800, 341,548 (slaves, 105,635); 1810, 380,546 (slaves, 111,502); 1820, 407,350 (slaves, 107,397); 1830, 447,040 (slaves, 102,994); 1840, 470,019 (slaves, 89,737); 1850, 583,034 (slaves, 90,368); 1860, 687,049 (slaves, 87,189); 1870, 780,894 (free colored, 175,391). Of the population in 1870, there were born in the State, 629,882; in the United States, 697,482; in foreign countries, 83,412; natives of Maryland residing in other States, 175,666. Persons to a square mile, 70.20, giving to Maryland the sixth rank in density of population.

Cities and Towns.—Baltimore, the seventh city of the Union in size, had a population of 267,354 in 1870. The city is situated on an arm of the Patapsco, 14 miles from Chesapeake Bay. The harbor is 3 miles

long, and its channel is dredged so as to afford a depth of 24 feet at mean low tide. It is defended by Fort McHenry, which was attacked by the British fleet in 1814. Druid Park contains 600 acres, and there are 12 public squares. There are many fine public buildings, among which are the Exchange, Athenæum, Maryland Institute, Court-House and the new City Hall, to cost $3,000,000. The "Monumental City" contains a monument to Washington 180 feet high, and the Battle Monument, erected to the memory of those who fell in the defence of the city in 1814. Two lines of foreign steamers connect Baltimore with the Old World. The receipt of grain in 1873 was 19,099,517 bushels. The Baltimore and Ohio Railroad is an immense trunk-line connecting with all parts of the West. The value of articles manufactured is more than $50,000,000 a year. There are nearly 200 churches and 123 public schools, with 40,183 pupils. In 1775 the town contained 564 houses and 5934 inhabitants. Annapolis, the State capital, 80 miles south of Baltimore, on the Chesapeake Bay, was founded in 1649. The United States Naval Academy is located on the bank of the Severn River. Population of the city, 5744. Frederick (population, 8526) is the second city in the State. Cumberland (8036) is the dépôt of the mining regions and has an important trade along the canal. Hagerstown (5779) is an important railroad centre. Among the other leading towns are Chesapeake City, Easton, Havre de Grace, Port Deposit, Sharpsburg and Westminster.

Government and Laws.—The general assembly consists of a senate of 26 members elected for 4 years and a house of delegates of 85 members elected for 2 years. Biennial meetings are held, and the members are paid $5 a day during the session. No minister of the gospel is eligible to the legislature. The governor (salary, $4500) is chosen for a term of four years. The State is divided into eight judicial districts. The court of appeals consists of the chief-justices of the first seven circuits, together with a judge elected by the people of Baltimore. Justices of the peace are appointed by the governor. Maryland has six representatives in Congress. The public debt of the State was $11,095,019 on the 30th of September, 1874.

History.—William Claiborne (not Clayborne, as many histories give it) settled on Kent's Island, in the Chesapeake, in the year 1631. "The pilgrims of Maryland," led by Leonard Calvert, landed at St. Mary's in 1634. They were a Roman Catholic colony. Liberty of religious opinion was proclaimed to all who acknowledged Jesus Christ as Lord. The law said that any person denying the Holy Trinity "shall be punished with death." Baltimore was laid out in 1730 and Georgetown in 1751. The boundary-line between Pennsylvania and Maryland was long disputed. Mason and Dixon, "the London surveyors," landed at Philadelphia Nov 15, 1763, for the purpose of determining the conflicting claims by an accu-

rate survey. They ran the line westward for 244 miles from the Delaware, when their Indian escort told them, "It is the will of the Six Nations that the surveys be stayed." That authority was not to be resisted, and the work *was* stayed. Maryland suffered much in the French and Indian wars. Her troops were active and efficient in the contest for independence. Congress met at Annapolis in 1783, and Washington resigned his commission. Several towns on the Chesapeake were plundered and burned during the last war with Great Britain. The State contributed 50,000 men to the Federal army during the civil war. The battle of Antietam, September, 1862, was the most bloody engagement fought on the Maryland soil. Gen. Lee invaded the State, on his way to Pennsylvania, in June, 1863, and Gen. Early's troops made another invasion in July, 1864. The present Constitution was adopted Sept. 18, 1867.

MASSACHUSETTS.

Situation and Extent.—Massachusetts is bounded on the N. by Vermont and New Hampshire, E. by the Atlantic Ocean, S. by the Atlantic Ocean and the States of Rhode Island and Connecticut and W. by New York. It is situated between latitudes 41° 15′ and 42° 53′ N. and longitudes 3° 28′ and 7° 5′ E. from Washington, or 69° 55′ and 73° 32′ W. from Greenwich. The length is 160 miles, from east to west, and the breadth 90 miles on the east and 48 miles on the west; area, 7800 square miles, or 4,992,000 acres.

Physical Features.—*Surface.*—The south-east section is low and sandy, the northern and central hilly and rolling, the western broken and mountainous. The Hoosac and Taconic Mountains are extensions of the Green Mountains. Greylock, or Saddle Mountain, in the north-west corner, attains an altitude of 3600 feet, and is the highest land in Massachusetts. Upon one side of it is the "Hopper," a chasm 1000 feet deep. Mount Washington, in the south-west corner, is 2624 feet high, and has a village upon its slope more than 2000 feet above the sea. In the Connecticut Valley are several peaks, of which the highest are Mettawampe (1200 feet), Mount Tom (1300 feet) and Mount Holyoke (1120 feet). From the summit of the latter East and West Rock, near New Haven, can be seen. Wachusett (2018 feet high) is an isolated peak in the northern part of Worcester county. Cape Cod is a low and barren sand-waste stretching out into the ocean in the shape of a bent arm. *Rivers.*—The Connecticut flows across the whole breadth of the State. Its principal tributaries are the Deerfield, Chicopee and Westfield Rivers. The Merrimac, which rises among the White Mountains, has a course of 40 miles parallel with the north-east boundary of Massachusetts; it is navigable to Haverhill, 18 miles. No other river in the world turns so many spindles. The mean annual flow at Lowell is 5400 cubic feet per second, and in freshets the

volume swells to 90,000 cubic feet per second. The Housatonic drains Berkshire county west of the Hoosac Mountains. Other small rivers are the Blackstone, Charles, Concord and Taunton. *Bays, Sounds and Islands.*—Massachusetts and Cape Cod Bays extend along the whole eastern coast as far north as Cape Ann. Buzzards' Bay, on the south, is 30 miles long and 7 miles wide. Nantucket Sound lies between the island of the same name and the main land. Vineyard Sound separates the Elizabeth Islands, 16 in number, from Martha's Vineyard, which is an island 21 miles long and from 3 to 9 wide. On its north side is Vineyard Haven, or Holmes's Hole, a favorite shelter for eastward bound vessels when the weather is too stormy for doubling Cape Cod. Nantucket Island, 15 miles long and from 3 to 4 miles wide, is very sandy and almost destitute of trees. It has been inhabited since 1659. *Forests.*—Among the principal trees are the ash, aspen, beech, birch, butternut, cedar, chestnut, elm, hickory, larch, basswood, maple, oak, pine, spruce, sycamore and tupelo. A catalogue has been published which enumerated 802 genera and 3153 species of animals and 594 genera and 1737 species of plants.

Soil and Climate.—A rich alluvial soil is found in the valleys of the Connecticut and of the Housatonic. Much of the land is sterile, but by careful tillage it is made to produce good crops. The average yield per acre, in 1873, was as follows: Indian corn, 35 bushels; wheat, 19; rye, 17; oats, 33.3; barley, 22; buckwheat, 15.6; potatoes, 125; tobacco, 1459 pounds; hay, 1.04 tons. The climate is one of extremes. On the 6th of June, 1816, snow fell to the depth of several inches in Berkshire county. In July, 1825, the mercury at Williamstown stood above 90° on every day from the 10th to the 23d; on the latter date it reached 98°, while the recorded temperature at Boston was 100°. The mean at Boston for the year 1873–4 was 48.2°; minimum, 0°; maximum, 98°; the wind was east on 127 days. During a period of twenty years, at Roxbury (now a part of Boston), the earliest flowering of the peach tree was April 16th, and the latest May 27th. Upon the isothermal charts the lines crossing Massachusetts are: Spring, 45°; summer, 67°; autumn, 47°–52°; winter, 25°–30°; annual mean, 45°–47°. For the year ending Sept. 30, 1874, the rainfall was 56.47 inches.

Agricultural Productions.—There were, in 1870, 26,500 farms, containing 2,730,283 acres (an average of 103 acres for each farm), of which 1,736,211 acres (63.6 per cent.) were improved. The value of farms, farm implements and live-stock was $138,482,891; value of farm productions, $32,192,378; value of productions per acre of improved land, $18.54; value of orchard products, $939,854; of market-garden produce, $1,980,321; of forest products, $1,618,818. The product of the principal crops, in 1873, was 1,446,000 bushels of Indian corn, 31,000 of wheat, 246,000 of rye, 665,000 of oats, 110,000 of barley, 50,000 of buckwheat, 2,425,000 of potatoes, 8,200,000 pounds of tobacco, 409,200 tons of hay; total valua-

tion of the above nine staple crops, $15,433,010. The estimated total number of live-stock in Jan., 1874, was 102,800 horses, 122,600 oxen and other cattle, 136,300 milch cows, 76,300 sheep, 78,000 hogs. Only 72,810 were employed in agriculture of the 579,844 reported as engaged in all classes of occupation.

Manufactures.—Massachusetts is the greatest manufacturing State of the Union in proportion to its population; it is surpassed only by the very much larger States of New York and Pennsylvania in the amount of capital invested and in the value of the annual products. In the manufacture of boots and shoes, cotton goods, woollen goods, cutlery and chairs Massachusetts ranks first. In a few of the leading industries the value of the products was reported in 1870 as follows: Boots and shoes, $88,399,583; cotton goods, $56,257,580; woollen goods, $39,489,242; bleaching and dyeing, $22,252,429; men's clothing, $20,212,407; leather, tanned and curried, $29,195,827; printing (cotton and woollen goods), $17,325,150; paper, $12,696,491; printing and publishing, $8,391,976; worsted goods, $8,280,541; lumber, planed and sawed, $6,551,690; flouring- and grist-mill products, $9,720,374; machinery, $11,554,416; molasses and sugar, refined, $7,665,485; straw goods, $4,869,514. The total number of manufacturing establishments reported was 13,312; hands employed, 279,380, of whom 86,229 were females above the age of 15 years; wages paid, $118,051,886; value of materials, $334,413,982; value of products, $553,912,568.

Mining and Quarrying.—The State is not rich in minerals, but there is an abundance of building-stone of the finest quality. From the extensive marble quarries of Berkshire county the stone was cut for the Capitol at Washington, the City Hall of New York, Girard College and many of the marble fronts of Philadelphia. Quincy granite was used in the construction of Bunker Hill Monument and the Astor House. There are large quarries in Monson and Pelham. The number of mining establishments was 65; hands employed, 1595; value of products, $1,493,522, of which $1,294,148 was for quarried stone.

Commerce and Navigation.—For the fiscal year ending June 30, 1874, the value of exports (domestic and foreign) from the 11 customs districts was $30,736,287; value of imports, $52,737,280; vessels entered, 5721 (3066 in the foreign trade); cleared, 5682 (2982 for foreign ports). Five steamers and 72 other vessels were built during the year. *Fisheries.*—More than half the product of all the fisheries in the United States at the time of the last census was credited to Massachusetts, which had employed in cod- and mackerel-fishing 1026 vessels, 8993 men and a capital of $4,287,871; value of the annual product, $6,215,325. The vessels are from 40 to 120 tons each, carry from 12 to 20 men as a crew and are engaged in fishing from May to October. The whale-fisheries employ 170 vessels.

Railroads.—The railroad statistics for 1874 were as follows: Miles of railroad, 2418; average cost per mile, $56,884; amount invested, $165,624,136; number of passengers carried, 42,480,494; total earnings, $34,632,483. There are 45 distinct railroads, some of them having several branches. Cheap trains have been run on the Eastern road, which, at a fare of five cents, afforded a fair profit to the corporation. The receipts per trip were $19.28 and the cost of running $14.14. The Hoosac Tunnel, 4¾ miles in length and, next to the Mt. Cenis Tunnel, the longest in the world, was completed in 1875, at a total cost, up to Jan. 1st, of $12,973,822.31.

Public Institutions and Education.—The State Prison, in Charlestown, has from 600 to 700 convicts; a new prison is to be erected at Concord. A separate reformatory prison for women will soon be completed. There are three reformatory schools—viz., a Reform School for boys at Westboro', an Industrial School for girls at Lancaster and a Nautical School in Boston harbor. The average number confined in all prisons was 3483. The State Almshouse is at Tewksbury. Pauper children are provided for at the Monson institution. The Bridgewater Almshouse has been changed into a workhouse. Liberal provisions have been made for the insane, of whom there are 4000 in the State, distributed at Worcester, Taunton and Northampton (State hospitals), Tewksbury (almshouse), Somerville, South Boston and Ipswich. Other institutions which care for State beneficiaries are the Eye and Ear Infirmary, School for Idiots, Asylum for the Blind, 2 schools for Deaf Mutes and an Infant Asylum. The Massachusetts General Hospital affords free treatment to the poor. The system of public schools is very excellent. In 1874 the number of public schools was 5435; pupils, 297,025; teachers, 8715; total paid for public instruction, $6,180,848. There are five State normal schools, having 47 instructors and 902 pupils. The number of colleges is seven—viz., Amherst, Boston College (Roman Catholic), Boston University (Methodist), College of the Holy Cross, Harvard University [see AMERICAN EDUCATION], Tufts College and Williams College; number of instructors, 278; students, 2529. For professional instruction there are 7 schools of theology (Baptist, Congregational, Methodist, Protestant Episcopal, New Jerusalem, Unitarian and Universalist), 2 schools of law, 2 schools of medicine, 2 dental colleges and 1 college of pharmacy. A university of modern languages has been organized at Newburyport. The State Agricultural College is at Amherst. Among the leading institutions for the instruction of women are Mount Holyoke Seminary and Smith College at Northampton. Phillips Academy at Andover and Williston Seminary at Easthampton are famous boys' schools. The number of libraries in 1870 was 3169, containing 3,017,183 volumes. The Boston public library contains about 270,000 volumes, and the library of Harvard College more

than 200,000. There were 259 newspapers and periodicals (increased to 321 in 1874) and 1848 religious organizations, having 1764 edifices.

Population.—The original Pilgrims who landed at Plymouth numbered about 100. The population was estimated at 40,000 in 1692, 120,000 in 1731 and 220,000 in 1755. The national census reported in 1790, 378,787; 1800, 422,845; 1810, 472,040; 1820, 523,159; 1830, 610,408; 1840, 737,699; 1850, 994,514; 1860, 1,231,066; 1870, 1,457,351. Of the 1,104,032 persons of native birth, 903,297 were born in Massachusetts, 55,571 in Maine, 47,773 in New Hampshire, 22,110 in Vermont, 14,356 in Rhode Island, 17,313 in Connecticut; 353,319 were of foreign birth; 243,784 natives of Massachusetts were residing in other States. The number of inhabitants to a square mile was 186.84; no other State in the Union is so densely populated.

Cities and Towns.—Nearly half the people of the commonwealth (48.7 per cent.) reside in cities. Boston, "the metropolis of New England," was originally comprised within the limits of a peninsula 3 miles long and 1 mile wide. Several of the adjacent towns and cities have been annexed, of which the most populous were Charlestown, Roxbury, Dorchester and Brighton. The population in 1764 was 15,520; in 1870, 250,526; and in 1874, with the new towns added, 360,000. Boston ranks next to New York in foreign commerce. Its jobbing trade in boots and shoes, woollen and cotton goods, leather, etc., is immense. Among the noted public buildings are Faneuil Hall, "the cradle of Liberty," built in 1742; the old State-house (1748), the present State-house (1793), the City Hall, Masonic Temple, Quincy Market, etc. The Cochituate water was introduced in 1848. Boston Common and the Public Garden occupy 75 acres in the heart of the city. Bunker Hill Monument, 220 feet high, and the Charlestown Navy Yard are now within the city limits. The great fire, in November, 1872, burned over 65 acres, destroyed 800 buildings, most of them massive warehouses, and inflicted a loss of 80 millions of dollars. Cambridge (population, 39,634), the seat of Harvard College, is a place of great literary and historic interest. The poet Longfellow now occupies the house which was Washington's head-quarters after he assumed command of the American army. Lowell (40,928) has 75 mill buildings and 16,000 operatives. Lawrence (28,921) has 25 mill buildings and 9000 operatives. Haverhill (13,092) is largely engaged in the manufacture of boots and shoes. Worcester (41,105), the second city of the State, has extensive machine-shops. Springfield (26,703), on the Connecticut River, is the location of the United States Armory. Other important and busy towns are: Fall River (26,766), Salem (24,117), Lynn, famous for its shoe-factories (28,233); New Bedford (21,320), largely engaged in whale-fishery; Taunton (18,629); Gloucester, the head-quarters of the cod and mackerel fishermen (15,389); Newburyport (12,595); and Holyoke, on the Connec-

ticut River (10,733). A city charter is not granted in Massachusetts to any town having less than 10,000 inhabitants.

Government and Laws.—The legislature consists of 40 senators and 240 representatives. The governor (salary, $5000) and other executive officers, as well as the members of the Legislature, are elected annually. The supreme judicial court consists of 7 judges, of whom the chief-justice receives a salary of $6500 and the others $6000. The superior court has 10 judges; salary, $5000, except the chief-justice, who receives $5300. All judges are appointed by the governor. The funded debt, Jan. 1, 1875, was $29,465,204.

History.—In 1602 a company of English colonists landed on the Elizabeth Islands, but soon abandoned their settlement. The Pilgrims landed at Plymouth Dec. 22, 1620. Nearly half their number perished before spring. During King Philip's war, in 1676, a dozen towns were destroyed, 600 houses burned and as many of the settlers killed. The destruction of tea in Boston harbor took place in 1773, and the battle of Lexington, April 19, 1775, began the war for independence. Maine was separated from Massachusetts in 1820. Attempts were made to repeal the prohibitory liquor law in 1874, but the bill was vetoed by Governor Talbot. The law was, however, repealed and a stringent license law was enacted in 1875. May 16, 1874, a reservoir at Williamsburg gave way; the flood destroyed 200 lives and $1,500,000 worth of property.

MICHIGAN.

Situation and Extent.—Michigan is bounded on the N. by Lake Superior, E. by Lake Superior, St. Mary's River, Lake Huron, St. Clair River and Lake, the Detroit River and Lake Erie, S. by Ohio and Indiana and W. by Lake Michigan and Wisconsin. It is situated between latitudes 41° 45′ and 48° 20′ N. and longitudes 5° 25′ and 13° 34′ W. from Washington, or 82° 25′ and 90° 34′ W. from Greenwich. The State comprises two peninsulas entirely separated from each other. The upper peninsula is 318 miles in length from east to west and from 30 to 160 miles wide; the lower peninsula has a length of 280 miles and a breadth of 250 miles. The area of Michigan is 56,451 square miles, or 36,128,640 acres.

Physical Features.—*Surface.*—The eastern shore of Lake Erie is low and swampy, thickly wooded and drained by several small and sluggish streams. Farther inland the country is rolling and picturesque, with hills from 100 to 200 feet high. Along the water-shed between the lakes there is an elevation of 600 or 700 feet. Bordering Lake Superior is a rough primary formation, with rugged hills and deep valleys. The "Pictured Rocks" are sandstone bluffs from 200 to 300 feet high, which have been worn by the waves into curiously fantastic forms. The highest eleva-

tions of the northern peninsula are from 1500 to 2000 feet above the level of the sea. *Lakes.*—Four great lakes wash the shores of this State, which together constitute one half the fresh water on the globe [see PHYSICAL GEOGRAPHY, p. 155]. In the northern peninsula there are many small lakes covering from one to a thousand acres. Fish are very abundant. Among those most frequently caught are the sturgeon, white-fish, Mackinaw trout (sometimes weighing fifty pounds), herring, pike, pickerel, bass, perch, catfish, etc. The value of the lake fisheries in 1870 was $567,576. *Rivers.*—Mr. Schoolcraft says there are 100 streams which empty into the lakes, but most of them are of small size. Grand River is 270 miles long, 50 rods wide and navigable for steamboats to Grand Rapids, 40 miles. The St. Joseph is 30 rods wide for 120 miles from its mouth. Other streams which empty into Lake Michigan are the Kalamazoo, Muskegon, Manistee and Grand Traverse. The Saginaw (navigable for 40 miles), Au Sable and Cheboygan empty into Lake Huron. Menomonee river forms a part of the western boundary of Michigan. The Detroit and St. Clair form the outlet of the great lakes and are navigable for the largest vessels. *Forests.*—Much of the northern peninsula is covered with a dense growth of timber, in which the pine and other soft trees predominate. The southern peninsula has many prairies and oak openings, but the early settlers found much of the land covered with forests, which were cleared away at an average expense of $15 per acre, by cutting the trees, rolling them together and burning them. The principal growths are beech, black-walnut, elm, maple, hickory, oak, basswood, linden, sycamore, hackberry, cottonwood, aspen, locust, butternut, poplar, hemlock, spruce, cedar, cypress, chestnut, pawpaw, white, yellow and Norway pine.

Soil and Climate.—The heavily-timbered lands have a considerable variety of soils, consisting of clay, or muck, or dry sandy loam. A layer of dark vegetable mould, mingled with sand, clay and yellow loam, is the predominant soil of the white-oak openings. The prairies have a black vegetable mould from one to five feet deep, based on a stratum of clay, rock or gravel. There are fertile valleys in the Lake Superior region, but much of the land is cold, broken and barren. In climate the difference between the northern and southern peninsulas is very marked. The mean annual temperature at Detroit, for 18 years, was 47.25°, and at Fort Brady, near the southern extremity of Lake Superior, for 21 years, 40.37°. For the year ending Sept. 30, 1874, the mean at Escanaba was 40.1°; at Marquette, 40.8°; at Grand Haven, 47°; at Detroit, 47.9° (minimum, 0°, maximum, 97°). Marquette was colder than Eastport, Me. (40.9°), while Detroit was warmer than New London, Conn. (47.7°). Upon the isothermal charts the lines passing through Michigan are: Spring, 40°–45°; summer, 65°–70°; autumn, 45°–50°; winter, 15°–25°; annual mean, 40°–47°. The amount of rainfall at Marquette was 21.32 inches; at De-

troit, 31.31 inches. The Straits of Mackinaw are usually closed by ice from the first of December to the first of May.

Agricultural Productions.—The whole number of farms reported by the census of 1870 was 98,786; average size of farms, 101 acres; land in farms, 10,019,142 acres, of which 5,096,930 were improved; value of farms, farm implements and machinery, $411,952,557; value of farm productions, betterments and additions to stock, $81,508,623; of orchard products, $3,447,985; of market-garden produce, $352,658. A few of the items reported by the State census of 1874 were as follows: Bushels of Indian corn, 20,792,905; wheat, 15,456,202; potatoes, 5,618,863; apples, 5,928,275; cherries, 66,746; strawberries, 48,922; pears, 40,857; peaches, 22,069; butter, 27,972,117 pounds; cheese, 4,101,912; wool, 7,729,011; grapes, 2,960,100 pounds; wine, 50,871 gallons; hay, 1,134,077 tons. Of live-stock there were 281,394 horses, 38,901 working oxen, 321,732 milch cows, 307,554 other cattle, 401,720 swine and 1,649,199 sheep.

Manufactures.—In 1810 the value of manufactured articles was $37,018; in 1850, $11,169,002; in 1860, $32,658,356. The whole number of establishments in 1870 was 9455; hands employed, 63,694; wages paid, $21,205,355; value of products, $118,894,676. In lumber products Michigan ranked first, surpassing Pennsylvania by four millions of dollars and New York by ten millions. The number of saw-mills was 1571; hands employed, 20,058; value of products, $31,946,396. The flouring- and grist-mill business ranks next in importance, the value of its products being $21,174,247. Among the other leading industries in value were: Boots and shoes, $2,552,931; carriages and wagons, $2,393,328; leather, tanned and curried, $2,670,608; machinery, $2,330,564; iron castings, $2,082,532; tobacco and cigars, $2,572,523; clothing, $2,577,154; agricultural implements, $1,569,596; printing and publishing, $1,071,528; woollen goods, $996,203.

Minerals and Mining.—The upper peninsula is very rich in minerals, among which have been found agate, chalcedony, cornelian, jasper, opal and sardonyx. The copper mines are said to be the richest in the world, with the exception of those in Chili. In the copper region, which is 135 miles long and from 1 to 6 wide, there were, in 1870, 27 mines, employing 4188 hands and yielding a value of $4,312,167, which was 82.95 per cent. of the whole product in the United States; 194,333 tons of copper ore were mined between the years 1845 and 1873. Michigan ranks next to Pennsylvania in the production of iron. The number of mines was, in 1870, 11; hands employed, 2005; tons of ore, 690,393; value, $2,677,965. In 1873 the product of iron ore had increased to 1,250,000 tons. Coal formations underlie 12,000 square miles of the State. There are salt wells which yielded 1,026,979 barrels in 1874.

Commerce and Navigation.—For each of the great lakes there

is a customs district—viz., Lake Superior, port of entry, Marquette; Lake Michigan, port of entry, Grand Haven; Lake Huron, port of entry, Port Huron; Lake Erie, port of entry, Detroit. In 1810 the exports from the latter port were valued at $3615. The first steamer arrived Aug. 28, 1816. During the year ending June 30, 1874, the value of exports, domestic and foreign, was $9,526,624; value of imports, $2,353,786; vessels entered in the foreign trade, 4682; cleared, 4718; vessels entered in the coastwise trade, 21,769; cleared, 21,484; total of entrances and clearances, 52,653. There were 110 vessels built (36 steamers), of 32,881 tons.

Railroads and Canals.—The number of miles of railroad, in 1873, was 3309; total capital account, $111,373,671; cost per mile, $52,489; total receipts, $14,295,988; receipts per mile, $6811; receipts to an inhabitant, $10.77; net earnings, $3,950,624; operating expenses, $10,345,364; dividends paid, $899,345. A ship-canal around the falls of St. Mary's allows the passage of the largest vessels between Lake Superior and Lake Huron. The Portage and Lake Superior Canal was completed in 1873, through which vessels may avoid Keweenaw Point.

Public Institutions and Education.—The State-Prison, at Jackson, established in 1838, contains 648 cells, and has received more than 5000 prisoners; the number of convicts, Sept. 30, 1874, was 703. The Reform School, at Lansing, opened in 1856, has 243 inmates; a farm of 225 acres affords employment for the boys during a few hours of each day. A State Public School for neglected and dependent children was opened at Coldwater, May 22, 1874, and in the following August had 135 inmates. The Asylum for the Insane, at Kalamazoo, established in 1859, has accommodations for 300 females and 260 males; number of patients, in 1874, 465. The grounds of the institution contain 195 acres. An appropriation of $400,000 has been made for the construction, at Pontiac, of another Asylum for the Insane. The Institution for the Deaf, Dumb and Blind, at Flint, was opened in 1854. Michigan contains 50 jails and 51 almshouses. The value of the grounds and buildings used for correctional and charitable purposes is $3,388,806; number of persons supported at the public charge in 1874, 4099; estimated cost of their maintenance, $631,458. A compulsory school-law is in force, which compels parents and guardians to send all children between the ages of eight and fourteen years to school for at least twelve weeks in every year. The statistics for 1874 were: School population, 436,694; number of school-houses, 5702; teachers, 12,276; total expenditures, $3,423,922. The University of Michigan, opened in 1842, has departments of law, medicine, literature, science and the arts. It had, in 1874–5, 44 instructors and 1183 students of both sexes. Other institutions for higher education are Adrian, Albion, Hillsdale, Hope, Kalamazoo and Olivet Colleges. The State Agricultural College has been in operation since 1857. The institutions for professional

instruction are 2 schools of theology, 1 of law, 3 of medicine and 1 of science. There are also 7 business colleges and a State Normal School. The last census reported 26,763 libraries, 211 newspapers and 2239 religious organizations, with 1415 edifices.

Growth in Population.—The earliest settlers were mostly from Canada. After the organization of a Territorial government, large companies of immigrants came from New England and New York. The number of inhabitants in 1800 was 555; 1810, 4762; 1820, 8896; 1830, 31 639 (an increase of 255.6 per cent.); 1840, 212,267 (570.9 per cent. increase); 1850, 397,654; 1860, 749,113; 1870, 1,184,059 (a gain of 58.06 per cent.); 1874 (by the State census), 1,333,861. Of the 916,049 persons of native birth, 507,268 were born in Michigan, 231,509 in New York, 62,207 in Ohio, 28,507 in Pennsylvania, 3932 in Maine, 3633 in New Hampshire, 14,445 in Vermont, 10,839 in Massachusetts, 1486 in Rhode Island, 7412 in Connecticut; natives of this State residing in other parts of the Union, 65,720. There were 268,010 persons of foreign birth, 4962 Indians, 1 Chinaman and 1 Japanese.

Cities and Towns.—Michigan contains 38 cities. Detroit, on the river of the same name, was early occupied as a trading-post. So numerous were the French-speaking inhabitants in 1817 that the leading newspaper divided its matter between the French and the English languages. The city extends for seven miles along the river front. Among the fine public edifices are the new City Hall, costing $600,000, Custom-house and Board of Trade building. There are many extensive manufactories; the value of the iron work is estimated at ten millions of dollars annually. Detroit has 8 lines of railroad, 8 daily newspapers and nearly 70 churches. The population was 79,577 in 1870, and 101,255 in 1874. Grand Rapids (population, 25,993), situated on the Grand River, at the head of steamboat navigation, carries on a large lumber trade. It is at the intersection of six railroads, and has 3 daily newspapers and 20 churches. Lansing (7445), the capital, has a new State-House in process of erection, 343 feet long, 191 feet deep and estimated to cost $1,200,000. The State Reform School and Agricultural College are located here. It has 4 railroads, 2 weekly papers and 15 churches. East Saginaw (17,084) extends for 3 miles along the Saginaw River, which is crossed by 3 bridges. It contains 5 founderies and machine-shops, 2 daily papers and 10 churches. Saginaw City (10,064), is on the opposite side of the river. These two places are the principal dépôts for the lumber and salt trade of the valley; the largest steamers can come up to the docks. Jackson (13,859), on the Grand River, is at the intersection of 6 railroads and has large machine- and repair-shops. The manufactures are valued at three millions of dollars a year. Two daily papers are published, and there are 13 churches. Bay City (13,690), at the mouth of the Saginaw River, contains 16 saw-mills

and numerous salt-wells, which produce 100,000 barrels annually. Fish are exported to the amount of 50,000 barrels a year. Six lines of steamers and 3 railroads afford ample freighting facilities. The city supports 9 churches and a daily newspaper. Adrian (8863), the seat of Adrian College, has 11 churches, 3 newspapers, a car-factory, founderies and flouring-mills. Muskegon (8505) ships 300,000,000 feet of logs a year. It supports 3 papers and 10 churches, and is at the intersection of 4 railroads. Port Huron (8240), at the southern extremity of Lake Huron, is the principal dépôt of the Canadian trade. Flint (8197), the seat of the Deaf and Dumb Asylum, has 10 saw-mills, 7 planing-mills, 3 weekly papers and 8 churches. Ann Arbor (6692) is best known as the location of Michigan University. The city extends on both sides of Huron River, and contains several woollen- and flour-mills, breweries, tanneries, saw-mills and 10 churches. Marquette (5242), on the southern shore of Lake Superior, is the supply and shipping dépôt for the iron mines. It has a weekly newspaper, 3 banks, 6 churches and a number of furnaces. Kalamazoo, on the river of the same name, 60 miles from its mouth, contains an Insane Asylum, a college, a female seminary and 16 churches. Railroads from six directions converge at this place. Among the other principal towns are Battle Creek, Ypsilanti, Manistee, Niles, Grand Haven, Coldwater, Alpena, Pontiac, Lapeer and Almont.

Government and Laws.—The legislature consists of 32 senators and 100 representatives, who, together with the governor and other executive officers, are elected for a term of two years. There are commissioners of insurance, railroads and immigration, and a State board of health, consisting of seven members. Appropriations for any religious sect and the granting of licenses for the sale of intoxicating liquors are prohibited. The supreme court consists of 4 justices (salary, $4000 each), elected by the people for 8 years. There are 20 judicial circuits, each presided over by a circuit judge. There are circuit and probate courts for each of the 77 counties and four justices of the peace for every township. Treason is the only capital crime; murder is punishable with solitary imprisonment for life.

History.—A mission was established at Sault Ste. Marie, by Father Marquette, in 1668; this was the first European settlement. In 1671 Michilimackinac fort and chapel were built, at the present site of Mackinaw. A military post was established at Detroit in 1701. The French remained in possession until 1763, when the territory was ceded to Great Britain. A bloody war was waged by the Indians under the leadership of Pontiac. At the close of the war for independence Michigan came under the dominion of the United States, but formal possession was not taken until 1796. The Territory of Michigan was organized Jan. 16, 1805. Detroit was taken by the British in 1812. The public lands were brought

into market in 1818. The upper peninsula became a part of Michigan in 1836, and the State was admitted into the Union Jan. 26, 1837. The name of Michigan is abbreviated from two Chippewa words (*mitchi* and *sawgyegan*) meaning the Great Lake.

MINNESOTA.

Situation and Extent.—Minnesota is bounded on the N. by British America, E. by Lakes Superior and Wisconsin, S. by Iowa and W. by Dakota. It is situated between latitudes 43° 30′ and 49° N. and longitudes 12° 39′ and 20° 5′ W. from Washington, or 89° 39′ and 97° 5′ W. from Greenwich. The extreme length north and south is 380 miles and the extreme breadth east and west 387 miles; area 83,531 square miles, or 53,459,840 acres.

Physical Features.—*Surface.*—The general elevation of the State is 1000 feet above sea level. In the northern part are the "Heights of Land," constituting a water-shed between three great river systems—viz., those of the Mississippi Valley, Hudson's Bay and the St. Lawrence. The most elevated lands reach a height of nearly 1700 feet about Lake Itasca. Other elevations are: Near Lake Shotek, 1578 feet; Lake Pemidji, 1456 feet; Leech Lake, 1330 feet. The north-eastern section has been characterized as "the region of swamps and bogs." Westward of the Mississippi the open rolling prairie begins. A gentle descent of 400 feet leads to the valley of the Red River of the North. This valley, or plain, is from 30 to 35 miles wide, and "a more complete dead level cannot be found in the whole country." The St. Paul and Pacific Railroad crosses it for 40 miles "without a curve, a fill or a cut, save what is necessary to remove the sod." *Forests.*—Nearly one-third of the whole area of the State in the north-east is almost entirely covered with coniferous forests. Twenty-one thousand square miles are included in the pine region. The swamps have a growth of tamarac of little value for timber. Deciduous trees predominate west of the Mississippi; the oak, elm and ash are most frequent, but every species of tree known to the Upper Mississippi Valley is found here, with the possible exception of the beech and sycamore. An immense forest, known as the Bois Franc by the early French settlers, and now as the "Big Woods," extends over the centre of the State; it is 100 miles long, 40 miles wide and covers an area of 4000 square miles, which is larger than the combined areas of Rhode Island and Delaware. *Lakes and Rivers.*—Minnesota has a coast-line of 120 miles on Lake Superior. Along the northern boundary are the Lake of the Woods, Rainy, Mountain and Arrow Lakes. Other lakes are the Red, Vermilion, Leech, Winibigoshish, Swan and Mille Lacs. These bodies of water are from one to thirty miles in diameter, and some of them cover an area of 400 square miles. Many of them have no visible outlet. There are said to be 10,000 lakes in the

State, most of which abound in fish and are surrounded by a heavy growth of timber. The Mississippi River rises in Lake Itasca and flows through and by the State for 800 miles (for 540 miles of which it is navigable), constituting the eastern boundary for 135 miles. At the Falls of St. Anthony it is 350 yards wide and has a descent of 58 feet. One of its affluents, the St. Croix, navigable for 60 miles, constitutes the eastern boundary-line for 130 miles farther. The Minnesota River rises in Dakota, flows through the State for 450 miles (navigable for 300 miles) and empties into the Mississippi above St. Paul. Emptying into the head of Lake Superior is the St. Louis River, 135 miles long, which boats ascend for 20 miles. The Red River of the North, after flowing through a chain of small lakes, turns almost due north and forms the western boundary of Minnesota for 380 miles. It is a deep and sluggish stream which steamboats traverse for 250 miles, carrying on a considerable trade with Fort Garry and other parts of Manitoba.

Soil and Climate.—The north-eastern section may be made productive by drainage when the timber is cleared away. In the central counties the soil has a considerable mixture of sand. Farther west it is mixed with more of clay and gravel. The prairies have a rich dark loam upon a gravel and clay subsoil. In winter the weather is intensely cold, but the air is dry and still. Snow covers the ground from November until March. In summer there are very frequent thunder-showers. Observations continued for 17 years, from 1844 to 1861, showed that the shortest season for navigation at St. Paul was in 1857, from May 1 to Nov. 14—198 days—and the longest season was in 1846, from March 31 to December 5—245 days. Feb. 18, 1848, the mercury sank to 37° below zero. For the year ending Sept. 30, 1874, the mean temperature at Breckenridge (latitude 46° 11′, longitude 96° 17′), near the western line and about midway between the northern and southern boundaries, was 37.2°. This was the lowest mean temperature at any one of the 89 United States Signal Service stations, with the single exception of Pembina, Dakota (34.3°). The mercury at Breckenridge was *below zero on* 78 *days*—viz., 4 days in November, 20 in December, 21 in January, 22 in February, 11 in March; the minimum was —33°, on the 24th of January, and the maximum, 96°, on the 10th of May; range, 129°. At Duluth the mean was 39.4°; at St. Paul, 42.6°; minimum, —23°, and maximum, 99°; range, 122°. The isothermals are: Spring, 40°–45°; summer, 65°–72°; autumn, 43°–47°; winter, 5°–15°; annual mean, 35°–45°. The death-rate in 1872 was 1.035 per cent. of the whole number of inhabitants. A killing frost, destroying corn and other unripe crops, was reported along the line of the Lake Superior Railroad on the night of the 22d of August, 1875.

Agricultural Productions.—Wheat is the great staple of Minnesota, occupying, in 1873, 63.53 per cent. of the entire acreage of culti-

vated land. The quantity produced was 28,056,000 bushels (only Iowa and Illinois produced more); number of acres in wheat, 1,533,115; average yield per acre, 18.3 bushels; value per bushel, 80 cents; total valuation, $22,444,800. The enormous increase during two decades will be seen when we state that only 1401 bushels of wheat were grown in 1850, 5,001,432 in 1860 and 18,866,073 in 1870. The value of the Indian corn, wheat, rye, oats, barley, buckwheat, potato and hay crops of 1873 was $37,198,350. At the beginning of 1874 there were in the State 152,200 horses, 3060 mules, 282,700 oxen and other cattle, 196,900 milch cows, 201,200 hogs and 157,400 sheep. According to the last census, the number of acres in farms was 6,483,828, of which 2,322,102 were improved; average size of farms, 139 acres; value of farms, farm implements and live-stock, $124,687,403; value of farm productions, $33,446,400. The early attempts at fruit culture were discouraging. One farmer reported that of the 8000 or 10,000 trees he first set out not 40 remained; but the hardy varieties are now thoroughly naturalized. In 1872 the number of apple trees in the State was reported as 1,734,861; bushels of apples, 39,663; quarts of strawberries, 277,716.

Manufactures and Mining.—The water-power of Minnesota is practically unlimited. At the Falls of St. Anthony alone 100,000 horse-power daily could be utilized. In 1873, 318,509,285 feet of logs were scaled in the North Mississippi, St. Croix and Duluth districts. The value of the lumber sawed was $4,299,162; grist-mill products, $7,534,575; machinery (railroad repairing), $788,074; cars, freight and passenger, $788,300; boots and shoes, $653,165; 2270 manufacturing establishments were reported; hands employed, 11,290; total value of products, $23,110,700. Valuable deposits of copper and iron are found in the north-east, salt springs in the Red River country and large beds of peat in many localities. Only small attention has been given to mining. The number of establishments in 1870 was 9; hands employed, 51; value of products, $35,350.

Commerce and Navigation.—Navigable waters to the extent of 1500 miles afford good facilities for trade. There are two customs districts, Duluth and Pembina (on the Red River). During the year ending June 30, 1874, the value of exports, chiefly lumber, flour and oats, was $706,406; value of imports, $194,183; number of vessels entered in the foreign trade, 95; cleared, 93; in the coastwise trade, 259 vessels entered and 264 cleared. Nine vessels were built, of which five were steamers.

Railroads.—Railroad corporations have received grants of 13,200,000 acres of land, which is nearly one-fourth the whole area of the State. In return for these grants the companies are required to pay a tax of 1 per cent. on their gross earnings for 3 years, 2 per cent. for the next 7 years and 3 per cent. thereafter. Thirty-one miles of railroad were in operation

in 1863. The statistics for 1873 were: Miles of railroad, 1950; cost per mile, $55,036; total capital account, $94,992,253; receipts, $4,212,844; receipts per mile, $2441; receipts to an inhabitant, $7.53; net earnings, $809,842.

Growth in Population.—The number of civilized inhabitants in 1849 was 4857; in 1850, 6077; in 1860, 172,023; in 1870, 439,706. During the decade from 1850 to 1860 the increase was 2730.72 *per cent., which is altogether unprecedented.* Wisconsin increased 886.2 per cent. between 1840 and 1850, but no other State has ever augmented its population 600 per cent. in a decade. The foreign born numbered 160,697 and the native 279,009, of whom 126,491 were born in the State, 2350 in Connecticut, 10,979 in Illinois, 9939 in Maine, 5731 in Massachusetts, 3742 in Michigan, 39,507 in New York, 12,651 in Ohio, 11,966 in Pennsylvania, 24,048 in Wisconsin, 385 in the Territories.

Public Institutions and Education.—The State Prison at Stillwater has cells for 300 convicts; 134 were in confinement at the close of 1874. A Reform School for boys and girls under 16 years of age was established at St. Paul in 1868, and contained 113 inmates at the last report. The Hospital for the Insane, at St. Peter, has accommodations for 450 patients; 497 were treated during 1874, with a daily average of 341. An Asylum for the Deaf, Dumb and Blind has been in operation at Faribault since 1863; 104 deaf and dumb and 22 blind persons were treated during 1874, at an expense of $30,818. There is a Soldiers' Orphans' Home at Winona. The Constitution provides for a general system of public schools in each township. A permanent fund is derived from the proceeds of the sale of school lands, which had realized more than two and a half millions of dollars up to the year 1872. The educational statistics for 1873–4 were: School districts, 3137; persons between 5 and 21 years of age, 196,065; teachers, 5206; school-houses, 2571, valued at $2,090,001. Carleton College, at Northfield, and St. John's College, at St. Joseph, are thriving institutions. The University of Minnesota had during the last collegiate year 15 instructors and 285 students, of whom about 80 were ladies. Connected with it is the College of Agriculture and the Mechanic Arts, with a property valued at $357,250. There are 3 normal schools and 2 schools of theology (Evangelical Lutheran and Roman Catholic). The census reported 1412 libraries, 877 religious organizations, with 582 edifices, and 95 newspapers, of which 6 were daily. The number of newspapers had increased to 139 in 1875.

Cities and Towns.—*St. Paul*, the capital, is situated upon a bluff on the east bank of the Mississippi River, 2070 miles above its mouth. The State House, State Arsenal, Opera House and Athenæum are among the most prominent buildings. Several lines of steamboats ply upon the river, and there are immense lumber- and flouring-mills. The town

was settled in 1840, and in July, 1847, contained two small log stores. Population in 1870, 20,130. Fifteen periodicals are published here, of which two issue daily, tri-weekly and weekly editions. *Minneapolis* (population in 1870, 13,066) is situated on both sides of the Mississippi River, at the Falls of St. Anthony. St. Anthony (population, 5013) was united with it in 1872, and the consolidated city was estimated to contain 32,000 inhabitants in 1874. Lines of steamboats run up the river to St. Cloud. There are three railroads, and the wholesale trade is estimated at 15 millions of dollars annually. There were 18 lumber-mills in 1873, which employed more than 2000 hands, and 18 flouring-mills, whose products were valued at five millions of dollars. The State University is located on a high bluff overlooking the Mississippi River. Minneapolis is also the seat of a Lutheran theological seminary. The city has 48 churches, 2 daily and 9 weekly newspapers. *Winona*, the third city of the State, contained 7172 inhabitants in 1870, and 10,743 in 1875. It is situated on the Mississippi River, 175 miles below St. Paul, and is a large wheat market. A State Normal School and Soldiers' Orphans' Home are located here. Three newspapers are published, of which one is a daily. *Duluth*, at the north-western extremity of Lake Superior, is an important business centre. It is the terminus of 2 railroad and 6 steamboat lines. There are several large saw-mills and factories, 12 churches, 2 daily and 3 weekly newspapers. The harbor, which is protected by a breakwater, will have a frontage of 20 miles on deep water. The population in 1860 was 71; in 1870, 3131; in 1875, upwards of 5000. *Mankato* (population in 1870, 3482, and in 1875 more than 6000) contains 4 newspapers and 11 churches. *Hastings* (3458) and *Rochester* (3953) are prosperous towns.

Government and Laws.—The legislative authority is vested in a senate of 41 members and a house of representatives of 106 members. Annual sessions are held, which are limited to 60 days. The governor (salary $3000) and other executive officers are elected for 2 years. The supreme court consists of 3 judges (salary $3000 each). There are 9 district courts. A court of probate is held in each of the 75 counties. All judges are elected by the people. A State board of health, a commissioner of railroads and a commissioner of insurance are appointed. On the 1st of January, 1875, the bonded debt was $480,000; the revenue for the preceding year was $1,112,812, and the expenditures $1,148,150.

History.—Minnesota, which in the Sioux language signifies "smoky water," was the name given to the principal river. Father Hennepin visited the Falls of St. Anthony in 1680. On the 8th of May, 1689, possession was taken of the country in the name of France. The authority of the United States was extended over it in 1812. Barracks were erected at Fort Snelling in 1819. Minnesota Territory was organized March 3, 1849, and on the 11th of May, 1858, Minnesota was admitted into the

Union as the thirty-second State. The present Constitution was adopted Oct. 13, 1857.

MISSISSIPPI.

Situation and Extent.—Mississippi is bounded on the N. by Tennessee, E. by Alabama, S. by the Gulf of Mexico and Louisiana and W. by Louisiana and Arkansas. It is situated between latitudes 30° 13′ and 35° N. and longitudes 11° 7′ and 14° 41′ W. from Washington, or 88° 7′ and 91° 41′ W. from Greenwich. Its extreme length from north to south is 331.65 miles and its breadth from east to west 210 miles. The area is 47,156 square miles, or 30,179,840 acres.

Physical Features.—*Surface.*—Along the Gulf of Mexico the country is low and sandy, with frequent cypress swamps and marshes. The central part of the State is hilly or undulating and interspersed with prairies. A belt of level country, covered with forests and designated as the "flat woods," extends from the northern boundary through the eastern counties half the length of the State, and terminates in Kemper county. In the north-east is a carboniferous formation, elevated some 500 or 600 feet above the level of the sea. Bluffs extend along the Mississippi River as far north as Vicksburg. Above that city the bottom lands stretch to the Tennessee line, with a width of 50 miles. As far east as the Yazoo and Tallahatchie Rivers the ground is low and swampy. Nearly 7000 square miles are liable to inundation. The levees were neglected during the war, and large tracts once cultivated have become the prey of the river. The waters remain stagnant in the morasses, lagoons and slashes, which are the retreats of alligators, snakes, lizards and swarms of venomous insects. *Rivers and Harbors.*—The Mississippi River forms the western boundary of the State for more than 500 miles. Its principal affluents are the Yazoo, 280 yards wide at its mouth, 290 miles long, navigable as far as the junction of its two branches, the Tallahatchie and Yalabusha, and draining a basin of 13,850 square miles; the Big Black, 200 miles long and navigable for 50 miles; the Bayou Pierre and the Homochitto. The Tennessee River forms the north-eastern boundary for 20 miles. The Tombigbee rises in this State and is navigable for steamboats to Aberdeen. Pearl River, which forms a part of the boundary between Mississippi and Louisiana, empties into Lake Borgne; it is 250 miles in length, and small boats navigate it for 100 miles, but the channel is much obstructed by sand-bars and drift-wood. The Pascagoula, which flows into the Gulf of Mexico, has a broad bay at its mouth, in which the depth of water is only four feet. Every part of the State is well watered, and the river system affords more than 2000 miles of steamboat navigation. The coast-line on the Gulf of Mexico is 90 miles in length. None of the harbors are deep enough for the admission of large vessels. A chain of low islands extends beyond

Mississippi Sound about 10 miles from the main land. *Forests.*—In the south-east are extensive and dense groves of pine, principally of the long-leaved variety. Live-oak and red cedar, for ship-building, are abundant; the live-oak does not flourish above the 31st parallel of latitude. Cypress grows in swamps which are submerged for half the year and furnishes the most durable timber. Among other trees are the ash, basswood, bay, beech, cherry, chestnut, cottonwood, elm, gum, holly, hickory, locust, mulberry, magnolia, poplar, plum, sassafras and black-walnut. Fig and peach trees are abundant and prolific.

Soil and Climate.—Along the gulf the soil is sandy. Above the 31st parallel the swamps bordering the Pearl and Pascagoula Rivers are very rich. The cane grows to a height of from 20 to 40 feet. When the floods recede, they leave behind, in the bottom lands, "a sediment as fine and fertilizing as the Nile mud." In the Yazoo swamps the alluvial deposit is sometimes 35 feet thick. Along the Mississippi River there are 4½ million acres of alluvial land of inexhaustible fertility, producing from 60 to 80 bushels of corn and from 1½ to 2 bales of cotton to the acre. Around the Tombigbee River are prairies with a rich, black, adhesive loam. In the north-east is a poor sandy soil which washes off from the hills. Mississippi stretches through five degrees of latitude and from the low shores of the gulf to the elevated lands of the north, exhibiting a great variety of climate. Near the gulf is a semi-tropical region, where the extreme heat of summer is tempered by the sea-breeze. Malarial fevers are quite prevalent in autumn. Cattle are not housed, but pick up their living out of doors all winter. Farmers plough in February, plant corn in March and harvest winter wheat in May. The isothermal lines which cross the State are: Spring, 65°–70°; summer, 80°–82°; autumn, 65°–70°; winter, 45°–55°; annual mean, 60°–70°. For the year ending Sept. 30, 1874, the mean temperature at Vicksburg was 66.5° and the maximum 96.5°. The mercury rose to or above 90° upon 10 days in May, 27 in June, 18 in July, 29 in August and 10 in September; total, 94 days. The rainfall was 65.24 inches.

Agricultural Productions.—Mississippi is almost exclusively an agricultural State. Of the 318,850 persons engaged in all occupations, 259,199 were employed in agriculture. It ranked first in the production of cotton at the last census (564,938 bales), sixth in rice (374,627 pounds) and fifth in sweet potatoes (1,743,432 bushels). The value of the Indian corn, wheat, rye, oats, potato, tobacco and hay crops of 1873 was $17,064,320. At the beginning of 1874 there were in the State 88,300 horses, 99,100 mules (only Tennessee and Alabama had more), 329,800 oxen and other cattle, 180,100 milch cows, 819,100 hogs, 153,600 sheep. The number of farms in 1870 was 68,023, averaging 193 acres each and including 13,121,113 acres, of which 4,209,146 acres were improved; value of farms,

$81,716,576; of farm implements, $4,456,033; of live-stock, $29,940,238; of farm productions, including betterments and additions to stock, $73,137,953. Marl beds, which are sometimes 100 feet thick, underlie 2000 square miles. There are also immense deposits of porcelain clay, silica for the finest glassware and valuable building-stones.

Manufactures.—Very little attention has been given to manufactures. The Federal census reported 1731 establishments; hands employed, 5941; value of products, $8,154,758. Among the leading articles were: Lumber, $2,229,017; grist-mill products, $2,053,567; carriages and wagons, $268,031; cotton goods, $234,445; machinery, $223,130; woollen goods, $122,973.

Commerce and Navigation.—The foreign trade is carried on largely through New Orleans and Mobile, cotton and lumber being the chief articles of export. Shieldsborough, the port of entry for the Pearl River district, had a foreign commerce, during the year ending June 30, 1874, amounting to $233,406, of which $219,214 was the value of domestic exports, mostly lumber, boards and shingles; vessels entered in the foreign trade, 93; vessels cleared, 94; in the coastwise trade, cleared, 96; entered, 68. The number of vessels belonging in the State was 117. Vicksburg and Natchez are also ports of entry.

Railroads.—Twenty-six miles of railroad were in operation in 1844. The report for 1873 returned 990 miles of railroad; cost per mile, $36,322; total capital account, $42,424,194; receipts, $5,424,326; receipts per mile, $4644; receipts to an inhabitant, $6.34; net earnings, $1,936,050. In 1874, 1038½ miles were in operation.

Public Institutions and Education.—The Penitentiary contains 200 cells, which is an insufficient number; there were 320 convicts in 1874. The institutions for the deaf and dumb and for the blind are designed to be training-schools rather than asylums. The Asylum for the Insane has upward of 300 inmates. All of the above institutions are located at Jackson. Free public schools are required by the Constitution for all between the ages of 5 and 21 years. Six colleges are reported—viz., Jefferson, Madison, Mississippi, Pass Christian, Tougaloo University and the University of Mississippi. There are also 6 colleges for young ladies, 2 normal schools, 1 school of law and 2 schools of science. The plan of the University of Mississippi includes a preparatory department and three general departments—viz., scientific, literary and professional. The College of Agriculture and the Mechanic Arts, connected with it, received part of the Congressional land grant. The Agricultural and Mechanical College, at Rodney, has a property valued at $136,055. According to the census of 1870, Mississippi contained 2788 libraries and 1829 religious organizations, with 1800 edifices. In 1875, 104 newspapers and periodicals were published.

Population.—The number of inhabitants in 1800 was 8850 (slaves, 3489); 1810, 40,352 (slaves, 17,088); 1820, 75,448 (slaves, 32,814); 1830, 136,621 (slaves, 65,659); 1840, 375,651 (slaves, 195,211); 1850, 606,526 (slaves, 309,878); 1860, 791,305 (slaves, 486,631); 1870, 827,922 (free colored, 444,201). The ratio of increase between 1800 and 1810 was 355.95 per cent.; between 1860 and 1870, 4.63 per cent. Mississippi ranked 18th in total population and 4th in the number of colored inhabitants. The foreign born numbered 11,191 and the native born 816,731, of whom 564,142 had their birthplace in the State, 59,520 in Alabama, 28,260 in Georgia, 9417 in Louisiana, 27,911 in North Carolina, 35,956 in South Carolina, 33,551 in Virginia; 252,589 native Mississippians were residing in other parts of the Union. The density of population was 17.56 to a square mile.

Cities and Towns.—*Jackson*, the capital, is situated on the west bank of the Pearl River. It is the seat of the four public institutions before mentioned. The State-House is a fine building, which cost more than $600,000; there is a State library containing 15,000 volumes. Railroads extend to the north, south, east and west, dividing the State into four parts. The city has 10 churches and 4 weekly papers. Population, 4234. *Vicksburg* (population, 12,443), on the east bank of the Mississippi River, 395 miles above New Orleans, has a very extensive river trade. The business, as at Natchez, is conducted "under the hill," and the bluffs are covered with handsome residences. There is a fine Court-House Four periodicals are published, two of them daily. *Natchez* (population, 9057) is situated upon the Mississippi River, 279 miles above New Orleans. Among the principal buildings are the Court-House, Masonic Temple and Roman Catholic Cathedral. Several lines of steamboats are employed in the shipment of cotton. The river has a depth of 118 feet at the docks. The city was incorporated in 1803. It contains 8 churches and 3 newspapers, one of them published every morning. *Columbus* (4812), on the Tombigbee River, receives large quantities of cotton for shipment through Mobile. The other principal towns are *Meridian* (2709), *Holly Springs* (2406), *Canton* (1963), *Grenada* (1887).

Government and Laws.—The legislature, which meets annually, consists of 37 senators, elected for 4 years, and 115 representatives, elected for 2 years. The executive officers are chosen for a term of 4 years. The supreme court consists of 3 judges, appointed by the governor and confirmed by the senate, who hold office for 9 years. A circuit court, presided over by a single judge, is held in each of the 15 judicial circuits. Chancery courts are held at least 4 times a year in every one of the 73 counties. No one who denies the existence of a Supreme Being can hold office. The value of the real and personal property in 1860 was $607,324,911, in 1870,

$209,197,345, a diminution which shows how disastrous were the effects of the civil war.

History.—De Soto visited this region in 1540 [see ALABAMA]. In 1682 La Salle took possession of it in the name of the king of France, and called it Louisiana. In 1699 a fort was erected on the bay of Biloxi. The Choctaws, Chickasaws, Natchez and other Indians were bitterly hostile, and committed great depredations upon the settlers. Natchez was first settled in 1716. On the 29th of November, 1729, the Natchez Indians made an attack upon the town and massacred 200 of the French colonists. Mississippi Territory was organized April 7, 1798. It comprised also the present State of Alabama north of the 31st parallel. The region south of that parallel, between the Pearl and Perdido Rivers, which had been claimed by Spain, was taken possession of by the United States in 1811, as a part of the Louisiana purchase, and added to the territory of Mississippi. On the 10th of December, 1817, Mississippi was admitted into the Union as the twentieth State. An ordinance of secession was passed Jan. 9, 1861, and the Constitution of the Confederate States was ratified March 30. Biloxi was captured by the Federal forces Dec. 31, 1861. Several battles were fought in 1862, among which were the battle of Iuka, Sept. 19th, and the battle of Corinth, Oct. 3d and 4th. Vicksburg, after a long siege, was captured by the Federal troops, July 4, 1863. On the 22d of August, 1865, the ordinance of secession was repealed. The 14th and 15th Amendments were ratified in January, 1870; Congress passed an act of readmission Feb. 23, 1870, and the civil authorities assumed control on the 10th of March.

MISSOURI.

Situation and Extent.—Missouri is bounded on the N. by Iowa, E. by Illinois and Kentucky, S. by Arkansas and W. by the Indian Territory, Kansas and Nebraska. It is situated between latitudes 36° 30′ and 40° 30′ N. and longitudes 12° 2′ and 18° 42′ W. from Washington, or 89° 2′ and 95° 42′ W. from Greenwich. The extent from north to south is 280 miles; from east to west, 208 miles along the northern border and 312 miles along the southern. It is larger than any State east of the Mississippi, covering an area of 65,350 square miles, or 41,824,000 acres.

Physical Features.—*Surface.*—Along the Mississippi River are bluffs, sometimes reaching a height of 350 feet. The eastern section of the State is broken by irregular ridges and its streams have a rapid descent. In the south-east are "the submerged lands of Missouri," which are low, marshy and covered with a rank growth of vegetation. These lands occupy the greater part of 9 counties and embrace 1,856,120 acres. The great earthquake of 1811, which formed Reel Foot Lake, in Kentucky, also submerged a large tract on the opposite side of the Mississippi River, in Missouri. In the south-west is a prairie region broken by many knobs,

or mounds, with steep sides and flat tops. The Ozark chain, which constitutes the water-shed between the Missouri and the Mississippi, "has no peaks which deserve the name of mountains." North of the Missouri the face of the country is somewhat rolling and broken. *Forests.*—Along most of the streams there is a heavy growth of timber, and some of the trees reach an immense size. A sycamore measured 43 feet in circumference, a tupelo 30 feet in circumference and 120 feet in height, a cypress 29 feet in circumference and 125 feet in height. From an extensive catalogue of the trees and shrubs in Missouri we select a few of the most common—viz., ash, basswood, birch, buttonwood, cedar, cherry, cottonwood, elm, gum, hackberry, hickory, locust, maple, mulberry, cypress, oak, pawpaw, persimmon, pine, red plum, prickly ash, sycamore, walnut, willow, etc. There is a great variety of animals and birds, among which are the elk, deer, bear, wolf, raccoon, opossum, rabbit, gray and fox squirrel, wild turkey, grouse, duck, snipe, partridge, plover, pheasant, gray and bald eagle, raven, crow, buzzard, magpie, paroquet and mocking-bird. *Rivers.*—The Mississippi River constitutes the eastern boundary for 470 miles, and the Missouri the western boundary for 250 miles. The latter river enters the State at Kansas City and runs in a southerly and easterly direction for 450 miles, dividing Missouri into two nearly equal parts. Its largest tributary is the Osage, rising in Kansas, which is 400 yards wide and navigable for small steamers 200 miles above its mouth. The Des Moines River constitutes a part of the north-eastern boundary for 30 miles, separating Missouri from Iowa. The river St. Francois runs between Arkansas and Missouri for 60 miles. Navigation is possible at high water on the White, Black, Current, Gasconade, Grand and Chariton Rivers. Among the smaller streams, which are numerous, clear and well stocked with fish, are the Big Tarkeo, Nodaway, Little Platte, Salt, Fabius, Piney, Castor and Whitewater.

Soil and Climate.—Along the Mississippi and Missouri Rivers there are "two millions of acres of the most productive land in the world, based upon the alluvial strata of sand, clay, marl and humus," says the State geologist. Next to these are one million acres of savannas, or bottom prairies. The alluvium is a light, siliceous soil, porous, rich and deep, and specially adapted to the growth of corn and hemp. A light deep soil, of a brownish ash color, called "hemp soil," is characteristic of the bluff region. Sometimes a predominance of clay makes it inferior, and it is called "hickory" or "mulatto" soil; but it is well adapted for corn, wheat, oats and tobacco. Some of the high prairies and timber ridges in the north-east have a thin sandy soil. Observations, continued for 25 years, at St. Louis, show a mean annual temperature of 55.4 degrees. The lowest monthly mean was 19.3°, in January, and the highest 83.5°, in July. For the year ending Sept. 30, 1874, the mean at St. Louis was 56.1°. The maximum temperature was 101°, and the minimum 1 degree below zero.

Upon the isothermal charts the lines crossing Missouri are: Spring, 55°–60°; summer, 75°–77°; autumn, 52°–55°; winter, 45°–55°; annual mean, 55°–60°.

Agricultural Productions.—Missouri is a great agricultural State. According to the census of 1870, it ranked next to Texas and Illinois in cattle, next to Illinois in swine, next to California in wine, fourth in corn and sixth in tobacco. There were 92,752 farms (averaging 215 acres each), which contained 21,707,220 acres; 9,130,615 acres were improved. The value of farms, farm implements and live-stock was $392,908,047; of farm productions, including betterments and additions to stock, $103,035,759. The value of the Indian corn, wheat, rye, oats, barley, buckwheat, potato, tobacco and hay crops in 1873 was $54,105,240. The number of live-stock in 1874 was 543,000 horses, 89,200 mules (ranking next after Tennessee, Alabama and Illinois), 806,300 oxen and other cattle, 421,400 milch cows, 2,603,300 hogs and 1,408,500 sheep. Cotton, flax and hemp thrive in the southern counties. There are a million acres of land adapted to the culture of the vine; the average product of grapes per acre is 6900 pounds, yielding 483⅓ gallons of wine.

Manufactures.—This State ranked fifth in the value of manufactured products and seventh in the amount of capital invested. In 1860 the number of establishments was 3157; hands employed, 19,681; value of products, $41,782,731. In 1870 there were 11,871 establishments; hands employed, 65,394; value of products, $206,213,429. The increase during the decade was nearly 400 per cent. Missouri ranked first in bridge-building, harness, saddlery and paints; next to New York in tobacco and next to Illinois and Ohio in pork-packing. Among the leading industries in value were: Flouring-mill products, $28,332,160; pork packed, $13,621,995; men's clothing, $7,271,962; malt liquors, $6,519,548; sawed lumber, $5,838,127; steam-engines and boilers, $3,825,100; bags, other than paper, $5,037,250; pig-iron, $2,991,618; tobacco, $8,356,511; saddlery and harness, $5,424,635. The number of hogs packed in 1873–4 was 746,366; average gross weight, 259 pounds; average net weight, 207.01 pounds; average cost per 100 pounds net, $5.37.

Minerals and Mining.—The State geologist, Professor Swallow, says: "There is no territory of equal extent on the continent which contains so many and such large quantities of the most useful minerals as the State of Missouri." *Iron ore* of the very best quality can be obtained in inexhaustible quantities. Iron Mountain is 228 feet high, and covers 500 acres at the base, which would give 230,187,375 tons above the surface level; and it extends down indefinitely, containing three million tons of ore for every foot of descent. Pilot Knob is 581 feet in height, and covers 360 acres. A large part of the immense mass is pure ore. It is estimated that this region would furnish ore enough for one million tons of manufac-

tured iron annually during the next 200 years. These mineral treasures were first discovered in the year 1720. In 1809 the product of the Missouri mines was estimated at a value of $40,100. Iron-smelting began in 1823–4. According to the authority above mentioned, this is also "one of the best lead regions in the world." Forty-five lead mines were worked as early as the year 1819 [see PHYSICAL GEOGRAPHY, p. 193]. Several large deposits of copper have been discovered; zinc is abundant, and nickel, platinum, cobalt and manganese occur. Coal formations underlie 26,887 square miles in the northern and western counties. The veins are sometimes 15 feet thick, and it is estimated that 100,000,000 tons of coal per annum could be furnished for 1300 years. Marble, granite and limestone are abundant enough to supply all demands. The Federal census reported 142 mining establishments, which employed 3423 hands and yielded products valued at $3,472,513 annually.

Commerce and Navigation.—There are three United States ports of delivery—viz., St. Louis, St. Joseph and Kansas City. The number of vessels belonging to the ports of Missouri, June 30, 1874, was 333, of which 177 were steamers. Twenty-nine vessels, 16 of them steamers, were built during the year. The imports in bond direct to St. Louis for the previous year were valued at $1,167,690.

Railroads.—As early as February, 1836, the mayor of St. Louis, in an official communication, urged the building of railroads in Missouri. Only 38 miles were in operation in 1853. Twenty years later the number of miles of railroad was 2858; cost per mile, $60,953; total capital account, $132,146,499; receipts, $12,188,908; receipts per mile of railroad, $5622; receipts to an inhabitant, $6.42; net earnings, $4,822,694. In 1874 the number of miles was 2985. The completion of the great bridge over the Mississippi River has given a great impetus to the development of the railroad system.

Public Institutions and Education.—The State Penitentiary, at Jefferson City, contained 1000 convicts in 1874. By the labor of the inmates the institution is made self-sustaining. The Asylum for the Insane, at Fulton, established in 1851, had 338 patients in 1875. Another asylum was opened at St. Joseph in 1874, and the St. Louis County Asylum receives State aid. There is an Institution for the Deaf and Dumb at Fulton, and an Institution for the Blind at St. Louis. Free schools are established by law. The statistics for 1874 were: Children between 5 and 21 years of age, 485,249; public schools, 7829; school-houses erected during the year, 548; teachers, 9676; receipts for school purposes, $2,117,662. There are 18 colleges, 4 schools of theology, 2 of law, 7 of medicine, 3 of science and 4 normal schools. Nine institutions for the superior instruction of women report an aggregate of 1136 pupils, with 97 instructors. The University of Missouri comprises seven departments, in which

instruction is given by 31 professors; 553 students were in attendance during the year. Connected with it is the Agricultural and Mechanical College, with a property valued at $455,875. The last census reported 5645 libraries, 3229 religious organizations, having 2082 edifices, and 279 newspapers, 21 of which were daily. In 1875 there were 401 newspapers and periodicals, including 30 published daily and 314 weekly.

Growth in Population.—The number of inhabitants in 1799 was 6028; in 1810, 20,845 (slaves, 3011); 1820, 66,586 (slaves, 10,222); 1830, 140,455 (slaves, 25,091); 1840, 383,702 (slaves, 58,240); 1850, 682,044 (slaves, 87,422); 1860, 1,182,012 (slaves, 114,931;) 1870, 1,721,295 (free colored, 118,071). The percentage of increase between 1810 and 1820 was 219.6; between 1860 and 1870, 45.62. Those of foreign birth numbered 222,267; natives of the United States, 1,499,028; of whom 874,006 were born in Missouri, 102,661 in Kentucky, 76,062 in Ohio, 72,623 in Illinois, 70,212 in Tennessee, 61,306 in Virginia, 51,303 in Indiana, 31,805 in New York; 171,262 natives of Missouri were residing in other States and Territories. There were 26.34 persons to a square mile, and the State ranked fifth in total population.

Cities and Towns.—*Jefferson City*, the State capital, is situated on the south bank of the Missouri River, 143 miles above its mouth. It contains the Penitentiary, a fine State House built of stone, flouring-mills, founderies, wooden-ware and carriage-factories, 8 churches, a daily and 2 weekly newspapers. The population in 1870 was 4420, and was estimated at 7500 in 1875. *St. Louis*, the fourth city of the United States in population, is situated on the west bank of the Mississippi River, 1378 miles above its mouth. It is near the geographical centre of the Mississippi Valley, which contains 1,300,000 square miles. The city extends for 12 miles along the river front and is 5 miles in width. The most conspicuous buildings are the Court House, which cost $1,000,000, City Hall, Custom House, United States Arsenal and the Merchants' Exchange, which will have cost, when completed, $5,000,000. St. Louis is the third city of the Union in manufactures, ranking next to New York and Philadelphia. In 1860 the amount of capital invested was $12,733,948; value of raw material, $16,212,699; products, $27,610,070. The increase was nearly fourfold during the next decade. In 1870 the capital invested was $48,387,150; value of raw material, $63,427,509; of products, $109,513,950. Among the leading articles of manufacture are iron, flour, doors, sashes and blinds, tobacco, white-lead and oil-paints. The trade in dry-goods and groceries has doubled in four years. Crossing the Mississippi is a bridge 2230 feet long and 54 feet 2 inches wide. It has 3 spans, the centre one 520 feet in length, and cost 9 millions of dollars, including the tunnel at the west end. Thirteen railroads are expected to have their terminus on the Illinois side, and 28 distinct railroads converge toward St. Louis, which is also the

centre of 13,000 miles of river navigation. The first settlement was made Feb. 15, 1764. In 1775 there were 800 inhabitants; in 1830, 6694; in 1840, 16,469; in 1850, 77,850; in 1860, 160,773; in 1870, 310,864. The same ratio of increase would give a population of half a million in 1880; 425,000 are claimed in 1875. The first steamboat arrived in 1817, and the city was incorporated Dec. 9, 1822. There are 116 churches. *Kansas City*, the second city of the State, is 235 miles west of St. Louis, upon the south bank of the Missouri River, which is spanned by a bridge 1387 feet long and constructed at a cost of a million dollars. Seven railroads centre at a union passenger dépôt, affording facilities for an extensive freighting business. There is a large trade in hogs and in Texas cattle. The city contains 30 churches and 2 theatres; 4 daily and 8 weekly newspapers are published. Population in 1860, 4418; in 1870, 32,260; estimated in 1875, 40,000. *St. Joseph* is situated on a great bend of the Missouri, 566 miles from St. Louis, with which it is connected by railroad and steamboat lines. It contains very large steam flouring- and saw-mills, pork-packing houses and manufactories. Three daily newspapers are published. St. Joseph was formerly the point of departure for emigrant trains across the plains; but this primitive fashion has been mostly done away by the extension of railroads, of which five now centre at this city. Population, 19,565. *Hannibal*, on the Mississippi River, 132 miles north of St. Louis, is the terminus of 4 railroads and a station upon a fifth. A bridge adapted for both wagon and railway travel spans the great river. Hannibal ranks next to St. Louis as a lumber mart. It has several large tobacco-houses, founderies, saw-mills, pork-packing houses, car-works, etc. There are 13 churches and a daily and weekly newspaper. Population, 10,125. Other leading towns are Springfield (5555), Lexington (4373), Sedalia (4560), Louisiana (3679), Cape Girardeau (3585), Macon (3678), St. Charles (3479), Independence (3184) and Booneville (3506).

Government and Laws.—The legislature, which holds biennial sessions, consists of 34 senators and 131 representatives. The governor (salary, $5000) and other State officers are elected for two years. The supreme court consists of five judges elected by the people for six years. Twenty-nine circuit courts are held, presided over by a single judge. The circuit court of St. Louis has five judges. County courts are held in the 114 counties. Every voter must be able to read and write. Imprisonment for debt is prohibited by the Constitution. The bonded debt Jan. 1, 1875, was $20,839,000; receipts into the State treasury for the current year, $3,307,419.

History.—Missouri was visited by Joliet and Marquette in 1673. The first settlement was made at St. Genevieve, in 1755. Up to 1751 there were but six settlements within 100 miles of the present site of St. Louis, which was founded in 1764. A combined attack upon the town by the

British and Indians, in 1780, was successfully repulsed. Spain obtained the jurisdiction of the country from France in 1763. It was again transferred to France in 1800, and purchased by the United States in 1803. On the 9th of March, 1804, the stars and stripes were unfurled over what was called the Territory of Upper Louisiana. The Territory of Missouri was organized June 4, 1812. Missouri was admitted into the Union as the twenty-fourth State, and the proclamation of the President announcing the fact was issued Aug. 10, 1821. Early in the civil war there were conflicts between the State militia and the United States troops. Governor Jackson issued a proclamation declaring the State out of the Union. The battle of Wilson's Creek, in which Maj.-Gen. Lyon was killed, was fought Aug. 10, 1861. Maj.-Gen. Fremont declared martial law throughout the State on the 31st of August. In the early part of 1862 the Confederate troops held half of Missouri, until Gen. Price was driven into Arkansas by a strong Federal force. A distressing guerrilla warfare kept the inhabitants in continual alarm. To the Federal side 108,773 soldiers were furnished during the war. Gen. Price again invaded Missouri in 1864, and was again forced to retreat. Jan. 6, 1865, a convention assembled to frame a new Constitution, which was ratified by the people in the following June.

NEBRASKA.

Situation and Extent.—Nebraska is bounded on the N. by Dakota, E. by Iowa and Missouri, S. by Kansas and Colorado and W. by Colorado and Wyoming. It is situated between latitudes 40° and 43° N. and longitudes 18° 25′ and 27° W. from Washington, or 95° 21′ and 104° W. from Greenwich. The extreme length from east to west is 412 miles, and the breadth from north to south 208 miles; area, 75,995 square miles, or 48,636,800 acres.

Physical Features.—*Surface.*—The surface of the country is chiefly an elevated, undulating prairie, without mountains or high hills. Above the level river-bottoms there is a rise of 30 or 40 feet to the table-lands, or second bottoms, and above these are sometimes bluffs reaching to a height of 200 or 300 feet above the river. "The prairie resembles the waves of the ocean suddenly arrested in their swell and changed into soil and rock," says the *Report of the General Land Office.* In Western Nebraska begin the outlying hills of the Rocky Mountain range. Along the Niobrara and White Rivers, extending into Dakota, are "sand-hills," exhibiting only a scanty vegetation, and very difficult to traverse on account of the loose sand. Twenty thousand square miles of this formation are unfit for cultivation and almost destitute of timber. Fossil remains of great interest to geologists have been discovered in great quantities. The White River fauna comprises 35 species of animals now extinct. The "Bad Land" formations extend over into Nebraska [see DAKOTA]. In-

dian hieroglyphics which antedate the traditions of all living tribes are cut deep in the bluffs along the Missouri River in places now inaccessible. *Forests.*—Geologists are of the opinion that the prairies have grown no trees during the present geological era, but many fossil remains of tropical and subtropical vegetation are found in the tertiary formation. Since the prairie-fires ceased many young trees have been planted, which grow with great rapidity. One farmer set out 120,000 trees in a single year. A cottonwood, 7 years old, measured 2 feet 6 inches in circumference; a maple, 10 years old, 2 feet 8 inches; a locust of the same age, 2 feet. "The common trees can be raised from the seed as well as corn or beans," says Prof. Hayden's Report. Peach trees bear in 3 years and apple trees in 4 or 5 years. The indigenous trees, growing chiefly along the water-courses, are the cottonwood, soft maple, elm, butternut, basswood, oak, black-walnut, honey locust and willow. Timber is most abundant in the south-eastern counties. *Rivers.*—The Missouri River forms the whole of the eastern boundary of Nebraska. The Platte, or Nebraska, River, from which the State received its name, is formed by the union of two streams—viz., the North Fork, rising in the mountains of Wyoming, and the South Fork, which has its sources among the peaks of Colorado. The Platte is a broad and shallow stream, fordable almost everywhere at low water. Its principal tributaries are the Coldwater, Loup Fork (made up of the North Branch, South Branch, Calamus and Beaver) and Elkhorn. The southern part of the State is drained by the various branches of the Kansas River, of which the largest are the Republican Fork (its tributaries being White Man's Fork, Medicine Creek and Beaver Creek), Little Blue and Big Blue Rivers. The northern counties are drained by the Niobrara, a rapid stream 400 miles long, which forms a part of the northern boundary and empties into the Missouri.

Soil and Climate.—Along the streams are wide fertile bottom lands with a rank vegetation. The soil has a siliceous marl, like the "loess" along the Rhine. Sometimes the vegetable humus extends to a depth of from 10 to 20 feet. From 2 to 4 tons of grass or 52 bushels of wheat to the acre is not an uncommon yield. A height of 6 feet is attained by the "blue joint" grass. The upland soil is 18 or 20 inches thick. It is claimed that there is hardly a foot of land in Eastern Nebraska which is not susceptible of cultivation. The winters are not very long; open weather continues until the end of November and spring weather begins with March. Corn is planted in April. High winds sweep over the plains, and the storms are sometimes of terrible severity. There is a deficiency of rain in the western part. The average rainfall for 5 years was 31.47 inches. In the southern district the average was only 23.21 inches. The mean temperature at Omaha for the year ending September 30, 1874, was 49.7°; mean for January, 22.3°; for July, 80°; maximum, 105° (upon

five days in July the mercury reached 100°); minimum —9° (the zero mark was reached upon 6 days in January). The isothermals for the State are: Spring, 50°; summer, 72°–75°; autumn, 50°–52°; winter, 20°–25°; annual mean, 47°–50°. The rainfall at Omaha was 25.65 inches.

Agricultural Productions.—During a period of five years the average yield of several staple crops per acre was as follows: Wheat, 17.7 bushels; corn, 32.54; rye, 20.66; oats, 36.65; barley, 26.75; buckwheat, 26.33; potatoes, 79.80. Of apples 146 varieties were on exhibition at an agricultural fair. One hundred and fifty species of grass have been noted. The various vegetables and fruits, such as turnips, carrots, sweet-potatoes, beets, parsnips, pumpkins, squashes, melons, grapes, cabbages, rhubarb, onions, radishes, lettuce, grapes, cherries, currants and berries of various kinds, are of the finest quality. Nebraska wheat brings the highest prices in the St. Louis market. The last census reported 2,073,781 acres in farms, of which 647,031 acres were improved; average size of farms, 169 acres; value of farms, farm implements and live-stock, $38,343,187; value of farm productions, $8,604,742. The value of the Indian corn, wheat, rye, oats, barley, buckwheat, potato and hay crops, in 1873, was $6,848,882. There were in the State, in 1874, 56,700 horses, 4400 mules, 87,800 oxen and other cattle, 49,900 milch cows, 128,500 hogs, 39,100 sheep.

Manufactures and Mining.—Manufactures are as yet very little developed. There were reported 670 establishments, employing 2558 hands; value of products, $5,738,512. Flouring-mill products were valued at $1,072,544, and machinery, railroad repairing, at $797,423. Few important minerals have been discovered. There are excellent quarries of limestone and large deposits of peat and potters' clay. Salt-basins are quite numerous; the "Great Basin" covers 400 acres, and considerable quantities of salt are made. Coal is found on the eastern slopes of the mountains, between Cheyenne and Denver. In 1870 the mining products were valued at $30,130, from 7 establishments.

Railroads.—Nebraska is deficient in navigable waters, except along the Missouri (Omaha is the only United States port of delivery), and most of the transportation is done by railroads. More than a million and a half bushels of grain were sent to market by a single railroad line in 1874. Only 122 miles were completed in 1865. In 1873 the number of miles was 1075; cost per mile, $69,532; total capital account, $115,311,976; receipts, $11,358,447; receipts per mile, $6541; receipts to an inhabitant, $59.78; net earnings, $5,612,050; the mileage in 1874 was 1120.

Public Institutions and Education.—The State Penitentiary and the Asylum for the Insane are at Lincoln. An Institute for the Deaf and Dumb was opened at Omaha in 1869, with 12 pupils. An act was passed in 1875 providing for an Asylum for the Blind at Nebraska

City. The school lands comprise 2,700,000 acres, which, at the estimated value of seven dollars per acre, would afford a school fund of $18,900,000. Jan. 1, 1875, the number of school-houses was 1516; children, 72,991; attending school, 47,718; teachers, 2735; value of school-houses and grounds, $1,546,480; total expenditures for school purposes, $1,004,957. The State Normal School comprises three departments. There are three colleges—viz., Doane College, at Crete, a Congregational institution; Nebraska College, at Nebraska City, which has also a divinity school, under the auspices of the Protestant Episcopal Church; and the University of Nebraska, at Lincoln, founded in 1871. This is open for both sexes, and is designed to afford instruction in six departments, including law, medicine, practical science and civil engineering, and the fine arts. The last census reported 390 libraries, with 147,040 volumes, 181 religious organizations, having 108 edifices, and 42 newspapers, 7 of them dailies. In 1875 the number of newspapers and periodicals was 98, of which 10 were published daily.

Population.—The number of inhabitants in 1860 was 28,841; in 1870, 122,993, of whom 789 were colored, 30,748 foreign born, and 92,245 natives of the United States. Of the latter number 18,530 were born in Nebraska, 9655 in Illinois, 1083 in Maine, 997 in Massachusetts, 4650 in Missouri, 10,729 in Ohio, 6991 in Pennsylvania, 2036 in Virginia, 3756 in Wisconsin and 633 in the Territories; 4704 natives of Nebraska had removed to other parts of the Union. There are about 6500 Indians, not taxed nor included in the census, who reside upon reservations of 892,800 acres, allowing 135.7 acres of land to each Indian man, woman and child. They belong mostly to the tribes of the Santee Sioux, Pawnees, Winnebagoes, Omahas, Sacs and Foxes, Otoes and Missouris.

Cities and Towns.—*Lincoln*, the State capital, was laid out in 1867. The State-House is of white limestone, and cost $100,000. The State University has a building erected at an expense of $150,000. A United States Post-Office and Custom-House is in process of erection. This city is at the intersection of 3 railroads. It is the seat of the State Penitentiary and Asylum for the Insane. There are 10 churches, 5 banks and 7 newspapers, 3 of them published daily. The population in 1870 was 2441, and in 1875 about 6500. *Omaha*, on the Missouri River, opposite Council Bluffs and 490 miles west from Chicago, is the principal city. Its altitude is 1060 feet above sea level. The town was laid out in 1854 and the city incorporated in 1857. Among the fine buildings is a United States Post-Office and Court-House which cost $350,000. Ten millions of dollars a year is the estimated amount of the wholesale trade. Gold and silver to the value of $1,350,000 and lead to the value of $800,000 were smelted in 1874. Omaha is the terminus of the Union Pacific Railroad and the site of its extensive repair-shops. Pork-packing is largely carried

on. There are 25 churches and 9 periodicals, 3 of them dailies. The High School was erected at an expense of nearly $250,000. In 1860 the number of inhabitants was 1950; in 1870, 16,083; in 1875, about 20,000. *Nebraska City*, founded in 1855, is situated on the Missouri River, 35 miles below Omaha. It is the terminus of the Midland Pacific Railroad, and has a Court-House, Opera-House, 3 banks, 13 churches, 2 daily newspapers, a public library and several factories and flouring-mills. Nebraska College is located here. The population of the city in 1870 was 6050. Other leading towns are Fort Kearney, Columbus, Fremont, Bellevue, Brownville and Plattsmouth.

Government and Laws.—In 1858 the civil code of Ohio and the criminal code of Illinois were adopted. Sixty-five counties have been formed, and a large part of the State is as yet unorganized. The legislature, which holds biennial sessions, consists of 13 senators and 39 representatives. All executive officers are elected for a term of 2 years, except the auditor, who serves for 4 years. The supreme court consists of 3 justices, with a salary of $2000 each, who are elected by the people, for a term of 6 years. Two terms of the court are held annually at the State capital. Three judicial districts have been established, in the courts of which the supreme court judges preside. Probate courts, which also have jurisdiction in minor civil cases, are held in each county. The total valuation of the State in 1874 was $81,218,813, and the tax 6¼ mills on the dollar. Ten per cent. is the legal rate of interest.

History.—This Territory was organized in accordance with the Kansas-Nebraska Act, passed May 30, 1854. Parts of Colorado and Dakota were included within its original boundaries. Indian outrages marked the early history of Nebraska, as of every other new State. Many settlers lost their lives and others were compelled to abandon their homes. On the 1st of March, 1867, Nebraska was admitted into the Union as the thirty-seventh State. It is the youngest member of the Republic. The Constitution proposed by the constitutional convention was rejected by the people Sept. 19, 1871. Another convention met in 1875. The summer of 1874 was made memorable by the ravages of the locusts, or grasshoppers, which in their flight filled the air as far as the eye could reach and, descending, devoured every green thing. In many counties the corn and wheat crops were totally destroyed. Congress appropriated $30,000 for the relief of the destitute, and nearly $70,000 were contributed by individuals.

NEVADA.

Situation and Extent.—Nevada is bounded on the N. by Oregon and Idaho, E. by Utah and Arizona, S. W. and W. by California. It is situated between latitudes 35° and 42° N. and longitudes 37° and 43° W. from Washington, or 114° and 120 W. from Greenwich. The portion

above the 39th parallel is a rectangular parallelogram and the portion below a right-angled triangle, with one angle cut away by the Colorado River, which constitutes the extreme south-eastern boundary. The length of the State from north to south is 485 miles and its greatest breadth from east to west 320 miles; area, 104,125 square miles, or 66,640,000 acres. Only Texas and California are larger.

Physical Features.—*Surface.*—Most of Nevada belongs to the "Great Basin," a table-land elevated 4500 feet above the sea. This is broken by successive mountain ranges, running parallel from north to south, the highest peaks of which are always covered with snow. Star Peak reaches an altitude of 11,000 feet. Between the mountains are deep valleys and broad basins. The Sierra Nevada, from 7000 to 13,000 feet in height, extends along the western boundary. Marked signs of volcanic agency are shown in the formation of the mountains, rocks, minerals and lakes. *Rivers and Lakes.*—The largest river is the Colorado, navigable for 600 miles [see ARIZONA]. Humboldt River rises in the mountains and empties into the lake of the same name after a course of 300 miles. Walker River (formed by the union of the East and West forks) and Carson River rise in the Sierras and flow into lakes which have no visible outlet. Many of the streams, among which is Reese River, in the centre of the State, disappear in the porous soil and reappear, or terminate in sloughs called "sinks." Lake Tahoe, lying partly in California, is 21 miles long, 10 miles wide and 1500 feet deep. Although it is elevated 6000 feet above the sea, the water never freezes, and has a mean temperature of 57° for the year. The other principal lakes are: Pyramid Lake (33 miles long and 14 miles wide), Walker (30 miles long and 7 wide), Mud, Franklin, Goshute and Preuss Lakes. A large number of "sinks," or mud lakes, contain only a foot or so of alkaline, brackish water, and in summer are entirely dry. *Hot Springs.*—Among the remarkable physical features of Nevada are its hot springs, some of which are 100 feet in diameter, 150 feet deep and have a temperature of 200 degrees. The Steamboat Springs, in Washoe county (so called because the steam issues in puffs, as if from an engine), register a temperature of 204 degrees. Chemical analysis shows that the mineral ingredients of these waters are the chlorides of magnesium and sodium, lime, sulphur and iron. Cold springs are very numerous in the mountain regions. *Forests.*—A heavy growth of timber, principally pine, fir and spruce, covers the eastern slopes of the Sierra Nevadas. The other mountain ranges are but scantily wooded and the trees are usually of the dwarf variety, such as nut-pine, juniper and mountain mahogany. White Pine county has a considerable growth of white pine and white fir; yellow pine grows on the slopes of the Spring Mountains. Large portions of the valleys and plains are entirely destitute of wood. Wild animals are few; those most frequently met with are the wolf, cayote, hare, etc.

Soil and Climate.—There are fertile valleys in the west. A considerable portion of the plains has but a scanty vegetation, and the great Colorado Basin is worthy of the name of "desert." Good crops can be procured by irrigation. Nevada has in general an equable climate. The mercury very frequently rises to 90° at midday, but sinks to 70° at night. There is an excessive heat in the south-east, sometimes reaching to 115°. The isothermal lines are: Spring, 55°–60°; summer, 70°–85°; autumn, 52°–60°; winter, 35°–40°; annual mean, 55°–60°. The rainy season in the north and west extends from January to May.

Agriculture.—The census of 1870 reported 1036 farms, averaging 201 acres each; land in farms, 208,010 acres; improved, 92,644; value of farms, $1,485,505; of farm implements, $163,718; of live-stock, $1,445,445; total, $3,094,672; value of farm productions, including betterments and additions to stock, $1,659,713. Some of the leading productions of 1873 were: 12,000 bushels of corn, 345,000 of wheat, 75,000 of oats, 420,000 of barley, 175,000 of potatoes, 55,000 tons of hay. Of live-stock, in 1874, there were 10,100 horses, 1000 mules, 44,000 oxen and other cattle, 9000 milch cows, 4900 hogs, 18,000 sheep. The foot-hills afford most nutritious pasturage for cattle, and Nevada offers great facilities for the keeping of stock.

Minerals and Mining.—Since the year 1871 the State of Nevada has *ranked first in the production of the precious metals, outstripping even California.* The bullion product from 1861 to 1871 was estimated at $160,854,143, and from 1871 to 1875 at $244,580,000; total product from 1861 to 1875, $405,474,143. The *Comstock lode* is one of the wonders of the world. In the autumn of 1870 the stock sold for $3 per share; in the following June it was held at $340 per share. The yield of the lode from July 1, 1872, to Sept. 1, 1873, was $22,122,666. In the four years from 1871 to 1875 the yield was $169,000,000. Between 1859 and 1871 the product, as estimated by the United States Commissioner of Mines, was $125,000,000; total yield from 1859 to 1875, $294,000,000. Yet the wonderful riches are by no means exhausted. Recent discoveries give promise of even larger treasure. The *Great Bonanza* is estimated, in 1875, to contain silver to the value of $1,500,000,000. The ore yields $600 per ton. A tunnel is in progress which will extend for 20,000 feet. The bullion product of the State during 1874 was $35,457,233, surpassing that of any other year. In connection with the precious metals, cinnabar, manganese, plumbago, magnesia, platinum, zinc, tin, nickel, cobalt and arsenic are found. Copper is quite extensively mined. There are deposits of kaolin, nitre, alum and mineral pigments. Soda and salt "occur in incredible quantities." On a lake near the centre of the State soda forms in an almost pure state. A thousand acres near Sand Springs are covered with the borates of soda and lime. Salt-beds extend over fifty square miles in

Esmeralda county, much of which is covered with incrustations of pure salt. In the south-east there are "salt-bluffs" 500 feet high, forming a mass of rock-salt 2 miles long and 1½ miles wide. Most of the manufacturing of Nevada is in close connection with its mines. The census reported 330 manufacturing establishments, employing 2859 hands and yielding products valued at $15,875,439. Of this last amount, the value of quartz milled was $12,119,719; gold and silver, reduced and refined, $260,000; lead, pig, $894,600; iron, castings, $641,250; machinery, $273,500; lumber, $447,500.

Railroads.—Nevada has fewer miles of water communication than any other State in the Union. Only one navigable river (the Colorado) touches it, and that but for a few miles. Hence railroads are especially needed for transportation. Three railroads are now in operation—viz., the Union Pacific, Virginia and Truckee, and Pioche and Bullionville, having in the aggregate 629 miles of track.

Public Institutions and Education.—New buildings for the State Prison are now in process of erection at Reno. The blind, deaf and dumb and insane are supported by the State in the institutions of California. A uniform system of common schools is required by the Constitution. By the provisions of an act passed in 1873, parents and guardians are required to send every child between the ages of 8 and 14 years to a public school for a period of at least six weeks in each school year. The report of the State Superintendent of Public Education for the year ending Aug. 31, 1874, gives the following statistics: Children of school age, 6315; school districts, 71; schools, 108; teachers, 115; pupils enrolled, 4811; receipts for school purposes, $126,094. By an act passed in March, 1873, the State University was located at Elko; the institution was opened in 1874, and $20,000 were appropriated for its support in 1875. The land granted by Congress for an agricultural college in each State will be appropriated to the University of Nevada. There were, in 1870, 314 libraries, with 158,010 volumes, 32 religious organizations, having 19 edifices, and 12 newspapers, of which 5 were daily. There were 22 papers, 12 of them daily, in 1875.

Cities and Towns.—*Carson City*, the capital, is situated in Eagle Valley, 190 miles north-east of San Francisco. It has a fine State-House and a United States Branch Mint, at which the deposits of bullion up to Jan. 1, 1875, were $14,093,487.86 in gold and $14,109,017.19 in silver; total, $28,202,505.05. There are several large quartz-mills. Two daily papers are published. The population, in 1870, was 3042, of whom 697 were Chinese. The other principal towns are: Virginia City (population, 7048), Gold Hill (4311), Hamilton (3913), Treasure (1920), Austin (1324), Elko (1160), Pioche City (1144), Reno (1035), Dayton (918) and Silver City (879).

Growth in Population.—Silver was discovered in 1859. The whole Territory did not then contain more than 1000 inhabitants. In 1860 the population was 6857; in 1870, 42,491, of whom 357 were colored and 38,959 white; 32,379 males and 10,112 females; 18,801 foreigners (including 3152 Chinese) and 23,690 natives. Of the latter 3356 were born in Nevada, 105 in Alabama, 103 in Arkansas, 2390 in California, 285 in Connecticut, 72 in Delaware, 27 in Florida, 87 in Georgia, 1144 in Illinois, 520 in Indiana, 492 in Iowa, 11 in Kansas, 603 in Kentucky, 195 in Louisiana, 1083 in Maine, 298 in Maryland, 997 in Massachusetts, 389 in Michigan, 24 in Minnesota, 67 in Mississippi, 1053 in Missouri, 19 in Nebraska, 289 in New Hampshire, 331 in New Jersey, 3256 in New York, 109 in North Carolina, 1858 in Ohio, 70 in Oregon, 1458 in Pennsylvania, 131 in Rhode Island, 73 in South Carolina, 324 in Tennessee, 73 in Texas, 419 in Vermont, 541 in Virginia, 330 in Wisconsin and 1085 in the Territories; 1532 natives of Nevada had removed to other parts of the Union. There were 9880 families, averaging 4.3 persons each, and 12,970 dwellings, averaging 3.27 persons each—a lower average for both families and dwellings than existed in any other State. Indian reservations of 320,000 acres each have been set apart near Lake Walker and Pyramid Lake, and there is a reservation of 2,496,000 acres in the south-east. Upon these lands there were, in 1875, about 5000 tribal Indians, including Pah Utes, Pi Utes, Goship Utes and Shoshones.

Government and Laws.—The legislative authority is vested in a senate of 25 members, chosen for 2 years, and an assembly of 50 members, chosen for 4 years. Each member receives $8 per day and 40 cents a mile for travel between his home and the seat of government. Biennial sessions are held, which are limited to 60 days. The governor (salary, $6000) and other executive officers are chosen for a term of 4 years. The supreme court consists of 3 judges, elected for 6 years and receiving an annual salary of $7000 each. Nine judicial circuits are established, with courts presided over by a single judge. Justices of the peace are elected in every city and township. In the trial of civil cases three-fourths of a jury may render a verdict. Ten per cent. is the legal interest, but any rate may be lawfully agreed upon. The assessed value of property, in 1874, was $26,630,279; receipts into the State treasury, $570,277; expenditures, $641,856, of which $64,090 were appropriated for the State Prison, $50,601 for the new prison at Reno, $30,510 for schools and $15,652 for the State University. On the 1st of January, 1875, the State debt was $735,528.

History.—Nevada formerly belonged to Mexico, and was ceded to the United States in 1848. Settlements were made by Mormons in the Carson, Eagle and Washoe Valleys during the same year. Gold was discovered in 1849 and silver in 1859. A Territorial government was organ-

ized March 2, 1861, and Nevada was admitted to the Union as the thirty-sixth member of the sisterhood of States on the 31st of October, 1864. So late in the year was the Convention held that it was necessary to telegraph the Constitution to Washington in order to secure the admission of the State before the presidential election.

NEW HAMPSHIRE.

Situation and Extent.—New Hampshire is bounded on the N. by the Province of Quebec, E. by Maine and the Atlantic Ocean, S. by Massachusetts and W. by Vermont. It lies between latitudes 42° 40′ and 45° 18′ N. and longitudes 4° 25′ and 6° 20′ E. from Washington, or 70° 40′ and 72° 35′ W. from Greenwich. The State has somewhat the shape of a right-angled triangle, with a perpendicular of 175 miles, a base of 75 miles and a hypotenuse of 190 miles. The northern boundary runs for 110 miles along the water-shed between the St. Lawrence and the Connecticut Rivers. An iron post at a point 2596 feet above the sea-level marks the north-eastern terminus. The area of New Hampshire is stated at 9280 square miles in the United States census report; but the computation of the State geological survey gives 9392 square miles, or 6,010,880 acres.

Physical Features.—*Mountains.*—Along the 18 miles of sea-coast are sandy beaches and salt marshes. The back country is diversified and rolling, with many hills and mountain peaks, among the most elevated of which (outside the White Mountain group) are Grand Monadnock, in Jaffrey, 3186 feet high, Mt. Kearsarge (2943 feet), Tri Pyramid, in Grafton (4086), Mt. Passaconaway (4200), Moosilauke (4811), Chocorua (3358). The *White Mountain District* covers an area of 1270 square miles, mostly wooded and very sparsely inhabited. The Saco River cuts it very nearly in the centre. Ten groups of mountains have been noted. From Gorham to Bartlett, a distance of 22 miles, the main range stretches in a direction from north-east to south-west. The principal peaks, taking them in succession from the north, are Mt. Madison, 5365 feet in height, Adams (5794), Jefferson (5714), Clay (5553), *Washington* (6293), Monroe (5384), Franklin (4904), Pleasant (4764), Clinton (4320), Jackson (4100), Webster (4000). Mt. Washington is the only one of the group which reaches an altitude of 6000 feet; 8 are more than 5000 feet high, 14 more than 4500, 20 more than 4000 and 28 equal, or exceed, 3000 feet. Mt. Lafayette, at Franconia Notch, is 5500 feet in height, and the Twin Mountains 5000 feet. In only one other State east of the Rocky Mountains are there such elevations [see NORTH CAROLINA]. No ascent of Mt. Washington was made by white men until the year 1642. It is a remarkable fact that while so many of the streams and lakes of New Hampshire are known by Indian names, the great mountains had no individual designation in the Indian vocabulary. It is said in explanation that the superstitious savages never

visited the summits, because they feared to expose themselves to the wrath of the spirits with which their imagination peopled the heights. The name of Agiocochook was applied to the whole group in one dialect; in another the designation was Waumbekket Methna, signifying "mountains with snowy foreheads." An Indian tradition says that the whole country was once flooded, and all the inhabitants were drowned save one Powaw and his wife, who fled to the summit of the Agiocochook, and thus survived to repeople the earth. The White Mountain Notch was discovered in 1771. It soon became a considerable thoroughfare, and long strings of teams from Vermont and Northern New Hampshire found their way to Portland through this avenue. The Notch, which is 2 miles long, is only 22 feet wide at "the gate," and through it runs the Saco River. The first horse taken through the gap, to prove that the route was feasible, was let down over the rocks by ropes. On the 28th of August, 1826, occurred the great avalanche which buried the Willey family of 9 persons. The house from which they fled is still standing. Not more than 10 or 12 persons from a distance visited the mountains in 1819. August 21, 1820, a party spent the night upon the summit. The throng of summer visitors now numbers 10,000 a year. The elevated railway has a maximum grade of 1980 feet to the mile or 13½ inches to the yard. Among the objects of special interest to tourists are the "Lake of the Clouds" and the "Old Man of the Mountains," whose profile, elevated 1200 feet above the lake beneath, measures 36 feet from the chin to the top of the head. In Coos county there are two other mountainous districts, separated from the White Hills by deep valleys. New Hampshire has an average elevation of 1400 feet above the sea. *Lakes and Rivers.*—One-sixth of the whole area is covered with water. No less than 1500 streams are delineated upon the maps. Almost upon the Canada line, elevated 2551 feet above the ocean level and surrounded by a dense forest of evergreens, is the lake which is the source of the Connecticut River. After flowing through two other small ponds and receiving several little tributaries the stream passes into the Connecticut Lake, which is 4 miles long, 2¾ miles wide and 1619 feet above the sea. Lake Magalloway, the source of the river of the same name, covers 320 acres and is elevated 2225 feet. Lake Umbagog (1256 feet high) extends over into Maine. Lake Winnipiseogee is 25 miles long, 8¼ miles wide and contains 274 islands. A little north-west of this is Squam Lake, 5 miles in length and 4 in breadth. Other considerable bodies of water are Sunapee and Ossipee Lakes. Perched 5009 feet above the sea is the Lake of the Clouds, the source of the Ammonoosuc River. The State is divided into five hydrographic districts—viz., the Connecticut, Merrimack, Piscataqua, Saco and Androscoggin. (1.) The Connecticut Basin is 185 miles long, from 5 to 30 wide and covers an area of 3060 square miles in New Hampshire. For 211 miles this river constitutes the western boundary of

the State. Its principal tributaries are the Upper and Lower Ammonoosuc, Sugar, Cold and Ashuelot Rivers, all of them originating on the western side of the "Heights of Laud." (2.) The basin of the Merrimack is 98 miles long, from 15 to 60 miles wide aud comprises 3825 square miles. The Pemigewasset and the Winnipiseogee unite to form the Merrimack. (3.) The Piscataqua Basin of 825 square miles is 45 miles in length and from 10 to 20 in width. This river is made up of the Cocheco and the Salmon Falls, which come together at Dover. (4.) The basin of the Saco is 46 miles long by 18 wide and contains 850 square miles. (5.) The Androscoggin Basin is 71 miles long, from 10 to 30 miles wide and covers an area of 825 square miles. All of the above streams are subject to sudden floods; they are abundantly stocked with fish, aud salmon were so plentiful that laborers in the olden times stipulated that they should not be fed upon salmon diet more thau five days in a week. Off the coast are the Isles of Shoals, 8 in number, of which 3 are under the jurisdiction of New Hampshire and 5 belong to Maine. Their total area is only about 600 acres. *Forests.*—A dense growth of trees originally extended over most of the State. Clearing laud was the first work of the early settler. Coos county is still covered with an almost unbroken primeval forest. Two-thirds of the Connecticut and one-third of the Piscataqua basins are still in timber land. The hills and mountains are covered with a growth of pine, oak (6 species), walnut, cedar, hemlock, fir, beech, maple, balsam, poplar and butternut; white oak and chestnut flourish on the hard, stony tracts, and spruce and hemlock on the thin, cold soils. Other trees are the ash, basswood, birch (4 species), buttonwood, larch, locust, etc. Pines sometimes grow to a height of 200 feet and to a diameter of 40 inches. There is a very marked difference between the vegetation of the northern and southern parts. More than 1000 species of plants have been noted. Forest trees grow on the White Mountains below the line of 3000 feet aud in sheltered localities up to 4000 feet. Above that the plants commou to Greenland aud Labrador are found. The bear, wolf, moose and other wild animals are occasionally seen.

Soil and Climate.—About one-twelfth of the area is above the liue of successful cultivation. The alluvial lands along the Connecticut are the most fertile. In the Merrimack Valley there are no swamps or low meadows, but elevated sandy plaius above the clay banks. The uplands, though rocky, have a strong and quick soil. In Belknap's history we read: "A storm is always expected in May, and till that is past the chimney is uot closed. We therefore reckon eight months of cold weather in the year." "Cattle are housed from the begiuning of November; . . . good husbaudmen do not permit them to feed till the twenty-first of May." Light frosts have been known in every month of the year. In 1816 snow fell in Southern New Hampshire on the 16th of Juue, and August was the

only month exempt from frost. Observations continued for six years showed that the earliest closing of Lake Winnipiseogee by ice was Dec. 17, and the latest Jan. 23; the earliest opening April 10, and the latest May 4; the shortest time during which it remained open was 7 months and 13 days, in 1873. Umbagog Lake closes about the middle of November, and was not clear of ice in 1873 until May 11. At Hanover the mean temperature, for 14 years, was 40.67°; at Concord, for 8 years, 44.5° (maximum, 98°, minimum, —32°); at Portsmouth, for 29 years, 45.42°. The lowest mean reported (not including the mountains) was at Stratford, 39.85°; and the highest at Manchester, 48.72°, and at Wakefield, 52.78°. A scientific party of 5, under the direction of Prof. C. H. Hitchcock and J. H. Huntington, spent the winter of 1870–71 (from November 12 to May 12) upon Mt. Washington. The climate for this altitude would correspond with that of the middle of Greenland, latitude 70° N. On the 5th of February, 1871, the temperature was 59 *degrees below zero.* Feb. 7 it rose to 62°, a change of 121° between Sunday and Tuesday. A wind velocity of 105 miles per hour was measured (the greatest velocity ever noted at the Central Park, in New York, was 45 miles); but even this was surpassed on the 15th of November, 1871, when the anemometer showed that the wind was blowing 151 miles an hour. The annual rainfall on Mt. Washington is 55 inches; in the centre of the State, 46 inches; along the seacoast, 35 inches. The isothermals for New Hampshire are: Spring, 40°; summer, 62°–67°; autumn, 43°–47°; winter, 15°–25°; mean, 45°. The climate, although rigorous, is favorable to longevity. Deaths are recorded at the ages of 120, 116 and 115 years, Belknap's history gives a list of 91 persons who lived to the age of a century. Thirteen centenarians were living in 1850.

Agricultural Productions.—The number of farms in 1870 was 29,642, averaging 169 acres each; 6 contained over 1000 acres. The whole acreage in farm lands was 3,605,994, of which 2,334,487 acres were improved and 1,047,090 acres in woodland; value of farms, $80,589,313; of implements, $3,459,943; of live-stock, $15,246,545; of forest products, $1,743,944; of orchard products, $743,562; of market-gardens, $119,997. Among the products were 1,800,704 pounds of maple-sugar, 16,884 gallons of maple-molasses and 2446 gallons of wine. The value of the Indian corn, wheat, rye, oats, barley, buckwheat, potato, tobacco and hay crops of 1873 was $14,704,900. In 1874 there were in the State 47,500 horses, 118,100 oxen and other cattle, 92,700 milch cows, 37,800 hogs, and 237,700 sheep.

Manufactures.—New Hampshire has fine water-power, and ranks fourth in the value of cotton and woollen goods. A canal was built around the Amoskeag Falls in 1816; but Manchester did not become a manufacturing town until 25 years later. A blast-furnace was erected at Franconia

in 1811; an ore was obtained from a mountain in Lisbon which yielded from 56 to 63 per cent. of pure iron. The number of manufacturing establishments reported at the last census was 3342; hands employed, 40,783; value of products, $71,038,249. Among the leading values were: Cotton goods, $16,999,672; woollen goods, $8,703,307; boots and shoes, $4,780,020; priuting, cotton and woollen goods, $4,670,333; lumber, $3,920,522; tanued leather, $1,965,576; paper, $1,913,595; flouring-mill products, $1,270,226; fire engines, $800,000; etc. There were 36 cotton and 156 woollen mills. In 1874 the number of cotton-mills was 42, having 855,189 spiudles.

Minerals and Mining.—Copper, lead, zinc, tin and arsenic are found. Gold has been mined in Lisbon to the value of $30,000; mica is quarried; soapstone is abundant, aud the granite of New Hampshire is extensively used. The product of the mines was $323,805 in 1870, of which $309,720 was the value of quarried stone.

Commerce and Navigation.—Before the Revolution a large trade iu lumber and fish was carried on with the West Indies and Great Britain. This commerce was annihilated by the war, at the close of which, in 1783, there was not a single square-rigged vessel in a seaworthy condition. Commerce gradually revived, and in 1806 the tonuage of Portsmouth was 22,798, and the total exports were valued at $795,263; 123 vessels cleared for the West Indies. This bright season of commercial prosperity was closed by the embargo, Dec. 22, 1807 [see HISTORICAL SKETCH, page 114]. During the year ending Juue 30, 1874, 54 vessels entered and 63 cleared iu the foreign trade; value of imports, $41,388. Three vessels were built during the year, and there were 74 belonging to the customs district, of which 26 were employed in the cod- aud mackerel-fisheries.

Railroads.—Ninety-two miles of railroad had been constructed up to 1844. In 1873 the number of miles was 877; cost per mile, $24,009; total capital account, $13,781,413; receipts, $3,618,460; receipts per mile, $4126; receipts to an inhabitant, $11.24; net earnings, $1,166,274. The mileage in 1874 was 946, under the control of 22 corporations. Railroads are taxed at the same rate as other property, the "present value" of the capital being fixed by the judges of the superior court.

Public Institutions and Education.—The State Prison at Concord, established in 1812, has less than 100 inmates. The surplus earuings of the prisoners amounted to more than teu thousand dollars. The Asylum for the Insane, also at Concord, was opened in 1842. It had received legacies and donations amounting to $244,180 up to 1874; number of inmates about 275. A Reform School for boys and girls has been in successful operation at Manchester since 1855, and receives about 150 pupils annually. The blind are supported at the Perkins Institute in Boston, and the deaf aud dumb at the American Asylum in Hartford. A

compulsory education law has been in force since 1871. All children between the ages of 8 and 14 years are required to attend school for at least 6 weeks in every year. In 1873–4 the State was divided into 2148 school districts; value of school-houses, $2,208,025; pupils enrolled, 69,178; teachers, 3812; amount of State school fund, $488,104; total expenditures, $606,846. A normal school was opened at Plymouth in 1871. Five institutions afford to young women the opportunities for higher education. Phillips Academy, at Exeter, established in 1781, and Kimball Union Academy, at Meriden, are ancient and flourishing schools. Dartmouth is the only college [see AMERICAN EDUCATION]. The census reported 1526 libraries, 633 religious organizations, with 624 edifices, and 51 newspapers, 7 of them dailies. In 1875 there were 9 daily newspapers and 68 of all kinds.

Cities and Towns.—*Concord*, the State capital, situated on the Merrimack River, has a fine State-House, rebuilt in 1866. Water is drawn from Long Pond at an expense of $200,000. The city has extensive quarries, 120 factories, the products of which are valued at $3,616,000 annually, 16 churches, 4 railroads, 2 daily newspapers, and the State library of 11,000 volumes. Population, 12,241. *Manchester* is also on the Merrimack River, which is spanned by 5 bridges. There are 5 corporations for the manufacture of cotton and woollen goods, with a capital of $6,650,000; number of looms, 7654; operatives, 9000, of whom 6300 are females. The city library contains 18,000 volumes. Two daily and three weekly newspapers are published. Population, 23,535, of whom 7158 were foreign born. *Nashua*, at the junction of the Nashua River with the Merrimack, has extensive cotton- and iron- mills, a library of 6000 volumes, 2 daily and 2 weekly newspapers, 11 churches and 6 railroads. The number of inhabitants was 10,543. *Dover* (population, 9294) is the oldest town in the State. It is situated on the Piscataqua River, 12 miles from the ocean, and is engaged very largely in the manufacture of cotton and woollen goods, boots and shoes, etc. There are three weekly newspapers, 8 churches and 2 railroads. *Portsmouth* (9211) is the only sea-port in New Hampshire, and its commerce has already been noted. Its situation at the mouth of the Piscataqua affords a deep harbor never impeded by ice. On the opposite side of the river is the Kittery Navy Yard. The other leading towns of New Hampshire are Keene (5971), Rochester (4103), Claremont (4053), Exeter (3437), Lebanon (3094), Milford (2606), Littleton (2446), Newport (2163), Hanover (2085).

Population.—The number of inhabitants in 1790 was 141,885; 1800, 183,858; 1810, 214,460; 1820, 244,022; 1830, 269,328; 1840, 284,574; 1850, 317,976; 1860, 326,073; 1870, 318,300. The number of foreign birth was 29,611; native birth, 288,689, of whom 242,374 were born in the State. New Hampshire had received 46,495 from other States, while

she had given to them 124,972 of her children, showing a loss to the Granite State of 78,477. There was a decrease in population during the last decade of 7773. The number of inhabitants to a square mile was 34.3. The original settlers of New Hampshire were principally of Scotch and Irish descent.

Government and Laws.—The general court, or legislature, consists of 12 senators and 341 representatives. Biennial sessions are held. The governor (salary, $1000) and his council are elected annually. Only Protestants are eligible to the legislative and judicial offices according to the Constitution. Three justices preside over the superior court, two terms of which are held each year at Concord. The circuit court also has 3 judges, and at least 2 trial terms per year are held in each of the 10 counties. Judges are appointed by the governor and his council. A law has recently been passed prohibiting marriages between first cousins. On the 1st of June, 1874, the State debt was $3,826,590; revenue for the year, $740,062.24.

History.—The Piscataqua River was explored in 1603. Capt. John Smith visited the Isles of Shoals in 1614. A settlement was begun near the mouth of the Piscataqua in 1623 by a party of Englishmen who came *to fish* and to trade. Dover was settled the same year. Exeter was settled in 1638 by Wheelwright and his sister, Anne Hutchinson. Dover was attacked by the savages June 27, 1689. Many houses were burned, 23 persons were massacred and 29 carried into captivity. Lovewell's fight took place April 18, 1725. Only 9 out of a band of 34 men returned unhurt. From 1680 to 1775 the seat of government was at Portsmouth. The sons of New Hampshire bore a conspicuous and honorable part in the struggle for independence. On the 21st of June, 1788, the Constitution of the United States was ratified, and in 1792 the State Constitution was adopted.

NEW JERSEY.

Situation and Extent.—New Jersey is bounded on the N. by New York, E. by New York and the Atlantic Ocean, S. by the Atlantic Ocean and Delaware Bay and W. by the Delaware Bay and River, separating it from the States of Delaware and Pennsylvania. It lies between latitudes 38° 56′ and 41° 21′ N. and longitudes 1° 27′ and 3° 6′ E. from Washington, or 73° 54′ and 75° 33′ W. from Greenwich. The extreme length, from Cape May to the northern angle, is 167⅞ miles, and the greatest breadth 59 miles. At the narrowest point, between Bordentown and South Amboy, the State is but 32 miles in width. The geological survey of New Jersey, with scientific accuracy, says: "In shape it bears some resemblance to a bean." Its area is 8320 square miles, or 5,324,800 acres.

Physical Features.—*Surface.*—The southern portion is almost entirely alluvial. A strip of marsh girts the sea-shore, with broad tracts of

salt meadow. Next to this is an immense sandy plain, seldom rising to a height of 60 feet above the sea-level, until it reaches the Nevisink Hills, opposite Sandy Hook, which have an elevation of 375 feet. Above Trenton the country is more rolling and based upon the old red sandstone formation. The north-western section is rugged and mountainous. A range of hills, beginning at Bergen Point, skirts the Hudson River as the Palisades and passes over into New York. Toward the Hudson the sides present an almost perpendicular wall from 300 to 400 feet high. On the west side the slope is very gradual. Rutherford Hill has an elevation of 1488 feet. Twenty miles west of the Palisades there is another nearly parallel range of hills. Six miles from Paterson is Sugar Loaf Peak, 1000 feet high. Along the north-west boundary are the Blue Mountains, through which the Delaware River breaks at the Water Gap, the sides of which are 1600 feet high. At High Point, near the New York line, is the most elevated land in the State, having a height of 1800 feet. *Rivers, Lakes and Bays.*—The Hudson River runs for 28 miles along the eastern border, receiving scarcely a tributary from New Jersey on account of the Palisades, and the Delaware River constitutes the whole of the western boundary. The three principal rivers within the State are the Hackensack, 80 miles long and navigable for 15 miles, which joins the Passaic at the head of Newark Bay; the Passaic, which has a fall of 72 feet at Paterson; and the Raritan, emptying into the bay of the same name, which is navigable to New Brunswick, 17 miles. Little Egg and Great Egg Rivers are the principal streams which discharge their waters into the Atlantic Ocean. Maurice River, emptying into Delaware Bay, is the largest stream in Southern New Jersey. There are several lakes in the northern part, of which the best known are Greenwood Lake, on the New York boundary, 16 miles in circumference, Lake Hopatcong, 5½ miles long, Budd's Lake and Green Pond. Newark Bay is 5 miles long and 2 miles broad. Staten Island Sound separates Staten Island from the main land. From Sandy Hook to Cape May is a long line of sandy beaches, interrupted by salt water marshes and numerous inlets and bays. Barnegat Bay, 40 miles long, and Great and Little Egg Harbors afford a safe anchorage for small vessels, but there are no good harbors. *Forests.*—The sandy plains of the south were originally covered with a growth of pine and shrub-oak. When these are cut over, another growth is ready for the axe in from 25 to 40 years. In the hilly district the principal trees are the oak, walnut, beech, birch, ash, elm, sugar-maple, pine, cedar, hemlock, etc.

Soil and Climate.—Sand and clay are blended in the alluvial district of the south, forming in many places a fertile loam. Beyond this strip of loam are the sand-plains, which have been but scantily cultivated. Eighty years ago these lands were worth from 6 to 10 cents an acre. Beds of marl underlie large portions of this district, and by its use the

sandy soil is made to produce abundant crops. The last few years have witnessed great changes in this portion of the State. Along the Hackensack and Passaic Rivers are deposits of alluvium from 12 to 20 feet thick. The climate is very variable. On the 22d of March, 1789, orchards were in full bloom, but on the 23d snow fell to the depth of two feet, destroying all the fruits for the year. In 1779 peach-blossoms and dandelions were seen in February. The Delaware was entirely unobstructed by ice during the winter of 1827–8. Several years of observation gave a mean temperature of 50.2° at Newark, 51.2° at Paterson, 54.4° at New Brunswick and 52.4° at Cape May. The isothermals for the State are: Spring, 50°; summer, 70°–75°; autumn, 52°–55°; winter, 15°–25°; mean, 50°–55°. During three years the rainfall at Paterson was 57.86 inches, and at Newark 46.82 inches.

Agricultural Productions.—A considerable part of New Jersey is a huge market-garden for New York and Philadelphia. Its fruits and vegetables are of excellent quality. As early as 1680 a settler wrote: "I have seen an apple tree from a pipkin kernel yield a barrel of curious *cyder*, and peaches in such plenty that some people took their carts a peach gathering. They are a very delicate fruit, and hang almost like our onions that are tied on ropes. My brother Robert had as many cherries this year as would have loaded several carts." The last census reported 30,652 farms, containing an average of 98 acres each; cash value of farms, $257,523,376; of farm implements, $7,887,991; of live-stock, $21,443,463; of farm productions, including betterments and additions to stock, $42,725,198; of market-garden produce, $2,978,250; of orchard products, $1,295,282. The value of the Indian corn, wheat, rye, oats, barley, buckwheat, potato and hay crops of 1873 was $24,310,570. In 1874 there were in the State 115,700 horses, 15,000 mules, 83,900 oxen and other cattle, 147,900 milch cows, 163,000 hogs, 125,900 sheep. Cranberries are extensively grown in "The Pines" of the southern seaboard counties, a region containing 1,200,000 acres, heretofore uncultivated; the yield in 1873 was 125,000 bushels, worth from $2.50 to 3.75 per bushel. Farming lands in New Jersey have an average value of $86.14 per acre, which is greater than in any other State.

Manufactures.—The first saw-mill was built in 1682. Ship-building was begun in 1683. The second paper-mill in the country was built in 1728, at Elizabeth. Window-glass was made in 1780. In 1830 the manufactures of iron were valued at a million of dollars and of glassware at half a million. In 1870 New Jersey ranked seventh in the value of manufactured products and eighth in the capital invested. It stood next to Pennsylvania in steel, next to New York in hats and caps and next to Connecticut in India-rubber goods. The value of the molasses and sugar refined was $11,199,740; flouring-mill products, $10,557,070; hats and

caps, $5,007,270; bleaching and dyeing, $4,889,695; trunks, valises, etc., $3,793,000; jewelry, $3,315,679; printing, cotton and woollen goods, $5,005,997. There were 17 cotton-mills in 1874, with 150,968 spindles.

Minerals and Mining.—Copper mines have been worked for 150 years. The deposits of zinc are very extensive and valuable. Freestone from Little Falls built Trinity Church, New York, and other sandstones of New Jersey are in high repute for building purposes. Marble, slate and the finest porcelain clay are found in large quantities. Iron mines are worked in the north-west counties. The product of the mines, quarries and clay-banks was estimated at five millions of dollars in 1875.

Commerce and Navigation.—The situation of the State gives it immense facilities for commerce. Hudson county has been styled "the land and ocean gate of America." A network of railways centre at Jersey City, bringing produce from every part of the West directly to the docks, where it is shipped for Europe. But this city belongs to the customs' district of New York, which receives credit for the business transacted on the Jersey side. For the year ending June 30, 1874, the exports at Newark were $83,997, at Perth Amboy, $3635; imports at Newark, $19,020, at Perth Amboy, $58,821. Seventy-five vessels were built in the six customs' districts, to which 1196 vessels belong. The State ranks sixth in the value of its fisheries, having 204 establishments, employing 947 hands; the value of the product was $383,121, of which $152,352 was credited to the oyster trade.

Railroads and Canals.—Nine companies had been chartered to build railroads previous to the year 1833, with an authorized capital of $7,140,000. The Camden and Amboy company was incorporated Feb. 4, 1830, with a capital stock of $1,000,000. Horses were the motive power in carrying passengers from February until September, 1833; after September locomotives were applied to one of the three daily trains. The railroad statement for 1873 was: Miles of railroad, 1418; cost per mile, $115,829; capital account, $151,388,606; receipts, $25,840,923; receipts per mile, $18,224; receipts to an inhabitant, $26.21; net earnings, $9,008,513. In 1874 there were 1438 miles of railroad. Only Massachusetts and Connecticut surpassed New Jersey in the proportion of railroad mileage to extent of territory (one mile of railroad to every 5.8 square miles of area). A general railroad law was passed in 1873, so that the old stigma of monopoly is removed from New Jersey. Railroad corporations are taxed ¼ of 1 per cent. on the value of their property. The Morris Canal, 101 miles long, connects Jersey City with the Delaware River, at Phillipsburg; it was completed in August, 1831, at a cost of 2 million dollars, which was swelled by subsequent improvements to 3½ millions. The Delaware and Raritan Canal connects the Delaware at Trenton with the ocean via Raritan River and Bay. This canal is 65½ miles long, and cost $4,580,395.

Population.—The early colonists were a mixture of Dutch, Swedes and English. Settlers from New England came in considerable numbers. The number of inhabitants in 1701 was 15,000; in 1737, 47,402, of whom 3981 were slaves; in 1745, 61,383; in 1790, 184,139; in 1800, 211,149; in 1810, 245,562; in 1820, 277,426; in 1830, 320,823; in 1840, 373,306; in 1850, 489,555; in 1860, 672,035; in 1870, 906,096. Of the latter number 188,943 were foreign born, and 717,153 native; 575,245 were born in New Jersey, 5448 in Connecticut, 3359 in Delaware, 1948 in Maine, 6068 in Massachusetts, 1202 in New Hampshire, 1390 in Vermont, 1868 in Ohio, 3384 in Maryland, 74,750 in New York, 31,947 in Pennsylvania, 2810 in Virginia and 434 in the Territories; 148,830 native Jerseymen were residing in other parts of the Union, and 141,908 persons had come in from other States, showing a loss of only 6922. This deficiency has been more than made up since the census by the overflow from New York and Philadelphia. Dr. Franklin said: "New Jersey is like a cider-barrel tapped at both ends." The past few years have seen it *filling up* at both ends with great rapidity. In density of population New Jersey ranked fourth among the States. The number of inhabitants to a square mile was 108.91, while Massachusetts contained 186.84, Rhode Island, 166.43 and Connecticut 113.15 persons to a square mile.

Public Institutions and Education.—The State-Prison at Trenton contained 653 prisoners on the 31st of October, 1874; receipts for the year, $104,041, leaving a surplus over all expenditures of $45,234. Prior to 1870 the prison was a tax upon the State, receiving an appropriation of about $60,000 annually. An Industrial School for girls has been established at Trenton. The State Reform School for Juveniles, at Jamesburg, received nearly 300 pupils during 1874. An Asylum for the Insane was opened at Trenton in 1868, which received 4588 patients within six years; 655 remained at the close of 1874. Another institution for the insane will be opened at Morristown in 1876. The building in process of erection, at a cost of $2,000,000, is 1243 feet long and 542 feet in depth, and will accommodate 1000 patients. The grounds comprise 416 acres. About $40,000 is expended annually for the support of the deaf and dumb, blind and feeble minded in the institutions of other States. All the public schools were made free by an act passed in 1871. A compulsory education law was passed in 1873. Corporal punishment is forbidden. No religious service or ceremony whatsoever is allowed in the public schools of this State except reading the Bible and repeating the Lord's Prayer. At the close of the school year, August 31, 1874, there were 1493 school-buildings, 186,392 pupils enrolled in the public schools and 3216 teachers; $2,304,398 were appropriated for educational purposes; the valuation of school property was $6,000,732. Twenty-five of the buildings are worth from $50,000 to $80,000 each. A large and flourishing Normal School is located at

Trenton. The College of New Jersey, at Princeton, ranks among the oldest institutions of the country [see AMERICAN EDUCATION]. Rutgers College, at New Brunswick, was chartered by King George III., and called Queen's College after his consort. Its scientific school constitutes the State College of Agriculture and the Mechanic Arts, with a property valued at $292,200. Burlington College is a Protestant Episcopal institution, and Seton Hall, at South Orange, is under the control of the Roman Catholics. The Stevens Institute of Technology, at Hoboken, has an endowment of $650,000. Four schools of theology are in successful operation—viz., the Theological Seminary of the Presbyterian Church, at Princeton; Theological Seminary of the Reformed (Dutch) Church in America, at New Brunswick; Drew Theological Seminary (Methodist Episcopal), at Madison; and a German (Presbyterian) Theological Seminary, at Newark. New Jersey has no law or medical schools. There were, in 1870, 2413 libraries, 1402 religious organizations, having 1384 edifices, and 122 newspapers, 20 of which were published daily. In 1875 the whole number of newspapers and periodicals was 177, of which 23 were dailies.

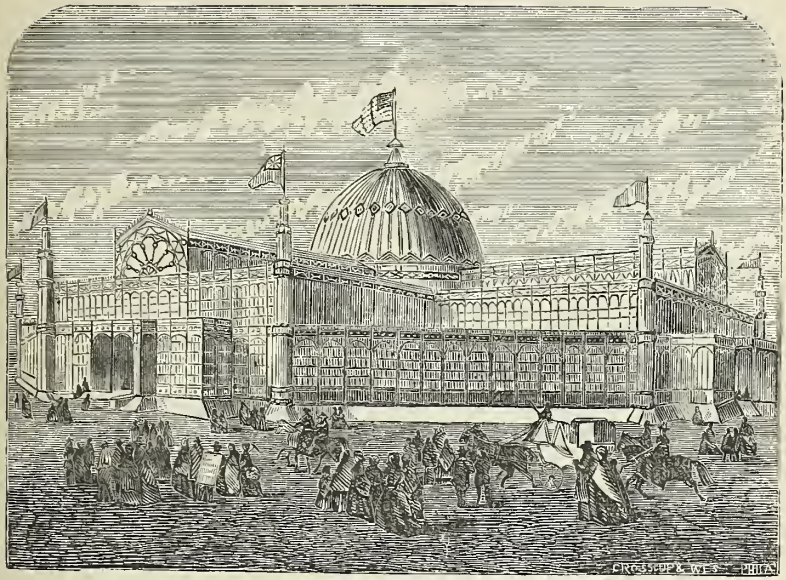
Cities and Towns.—*Trenton*, the State capital, situated on the east bank of the Delaware River, is the seat of several State institutions already mentioned. It has very extensive potteries and iron mills and 5 daily papers. Population, 22,874. *Newark*, settled in May, 1666, by families from New Haven and Milford, Conn., had 4838 inhabitants in 1811, and 105,542 in 1870; the estimate for 1875 is not less than 125,000. It contains more than a thousand manufacturing establishments, employing nearly 30,000 hands and producing an annual value of $75,000,000. There are about 100 churches and 6 daily and 11 weekly newspapers. Newark is connected with New York by 3 railroads, over which are 215 trains daily. *Jersey City* had a population of 6856 in 1850, and 85,335 in 1870 (including Greenville, which was subsequently consolidated with it). It is the terminus of 6 great railway lines, and 300 passenger trains arrive and depart daily. The Cunard steamers have their docks at Jersey City. Five lines of steam-ferries connect it with New York. It has 60 churches and 3 daily newspapers. *Paterson* (population, 33,579), 17 miles from New York, at the falls of the Passaic, has 60 factories, 25 churches and 2 daily newspapers. *Camden* (population, 20,045 in 1870, and 33,966 in 1875), is on the east side of the Delaware River, opposite Philadelphia, with which it is connected by 5 steam-ferries. It is the terminus of 4 railroads and has large iron founderies and glassworks. *Elizabeth* (20,832) is the home of many New York business men. There are 123 passenger trains a day to and from the metropolis. Elizabethport is a great coal-distributing point and the location of the Singer sewing-machine works, which have 4½ acres under roof. The city contains 75 miles of avenues; 400 dwellings have been erected in a single year. *Orange*, which

received a city charter in 1872, is situated at the base of Orange Mountain, 12 miles from New York. Within the limits of the original township there are 6 railroad stations and 22 churches. Llewellyn Park contains 750 acres, and there are 10 miles of carriage roads. Population of the city, about 10,000. Rahway (6258) contains 10 churches; 47 passenger trains stop at its dépôts. Morristown (5674) has the house still standing which was General Washington's head-quarters. New Brunswick (15,058), on the banks of the Raritan, is the seat of Rutgers College. Other leading towns are Hoboken (20,297), Vineland (7029), Bridgeton (6830), Bordentown (6041), Burlington (5817), Plainfield (5095) and Princeton (3986). Long Branch, Cape May and Atlantic City are popular seaside resorts. It has been proposed to unite Jersey City, Newark, Elizabeth, etc., into a single city, containing 122 square miles (less than the area of Philadelphia), which would form a metropolis of 400,000 inhabitants. Between 1860 and 1870 New York city increased 14 per cent. and New Jersey 40 per cent.

Government and Laws.—The legislature is composed of 21 senators (one from each county) and a house of representatives, which cannot exceed 60. Members are paid $3 per day. The legislature is forbidden to grant divorces or to authorize lotteries. A salary of $5000 per annum is paid to the governor, who continues in office for three years. The chancellor, who presides over the court of errors and appeals, is elected for a term of 7 years, and receives a salary of $5500, besides fees. Aliens may hold real estate. This law was originally passed for the benefit of Joseph Bonaparte, the eldest brother of Napoleon, who had been made king of Spain in 1808. After the downfall of Napoleon I., Joseph Bonaparte sought an asylum in the United States, accompanied by his nephew Prince Murat, the son of Caroline Bonaparte and of the king of the Two Sicilies. Popular opinion credited them with the possession of enormous wealth. To enable aliens to hold real estate required a special act of the legislature. Pennsylvania refused to pass such an act, but New Jersey yielded, and the distinguished exiles made that State their home. They purchased a large tract of land at Bordentown, commanding a fine view of the Delaware River, and erected a magnificent mansion. Joseph assumed the title of Count de Survilliers, and lived in retirement until the year 1830, dispensing his money with a lavish hand. The Pennsylvanians, regretting when it was too late that they had not allowed the two foreigners to possess an estate within their own boundaries, charged the Jerseymen with importing a king from Spain to rule over them. Such is said to be the origin of the humorous taunt that New Jersey is "out of the Union."

History.—On the 3d of September, 1609, the "Half Moon," commanded by Henry Hudson, cast anchor near Sandy Hook. On the 6th a boat sailed through "a narrow river" (the Kills) and saw an "open sea"

(Newark Bay). There were no permanent settlements during the continuance of the Dutch dominiou, although in 1661 New Jersey was spoken of thus: "It is under the best clymate in the whole world; seed may bee thrown into the ground, except six weeks, all the yere long." Settlers from Long Island began a town near Newark in 1664. Lord Berkeley and Sir George Carteret purchased the claim of the Duke of York to these lands, and, as Sir George had been governor of the Island of Jersey, the name of New Jersey was given to his new possessions. His brother Philip Carteret was sent out from England as governor in 1665 and established himself at Elizabethtown, now Elizabeth. In July, 1673, the Dutch recaptured New York and claimed the whole province of New Jersey, to which they gave the name of Achter Kol. The following year Great Britain again obtained possession of it. In 1682 the whole territory was purchased by William Penn and other Quakers. William Temple Franklin, son of Beujamin Franklin, was the last royal governor. On the 2d day of July, 1776, New Jersey declared "all civil authority under the king to be at an end in this colony," and adopted a form of government by the people. William Livingston was elected governor. The first legislature met at Princeton in August, 1776. Several battles were fought on the soil of this State during the war for independence, of which the most noted were the battles of Trenton, Dec. 26, 1776 [see HISTORICAL SKETCH, page 101], Princeton, Jan. 3, 1777, aud Monmouth Court-House, June 28, 1778. By a unanimous vote the Federal Constitution was ratified Dec. 18, 1787. The present State Constitution was adopted on the 13th of August, 1844. Various amendments to the Constitution proposed by the constitutional convention were approved by the legislature in 1875. By the provisions of these amendments the word "white" was stricken out of the article on suffrage and the word "male" was restored, thus disposing of the question of woman suffrage. Members of the legislature shall receive $500 aunually, and no other allowance or emolument whatsoever. The legislature shall provide for an efficient system of free public schools for the instruction of all children iu the State between the ages of five and eighteen years. Property shall be assessed for taxes under general laws and by uniform rules, according to its real value. Judges of the inferior courts shall be appointed by the governor. The amendments were submitted to the people at a geueral election held on Tuesday, Sept. 7, 1875. Considerable opposition was manifested in the eastern counties to the "Five County Act," taxing mortgages which had been heretofore exempt; but all of the amendments were adopted by a majority of from 10,000 to 30,000 votes.



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NEW YORK EXHIBITION, 1853.

THE New York Crystal Palace, in which this exhibition was held, was situated in Reservoir Square, and was designed by Messrs. Carstensen and Gildemeister. The main building was two stories high, the first story being in the form of an octagon, and the second in that of a Greek cross. In the centre was a dome 148 feet in height and 100 feet in diameter. The corners of the octagon were furnished with towers 70 feet high, each surmounted by a flag-staff, which added greatly to the lightness of their appearance. The area of the main building, including that of the galleries, was 173,000 square feet, and there was an additional building with an area of 33,000 square feet. The whole structure was composed of 45,000 square feet of glass, in panes of 16 by 38 inches, 1200 tons of cast iron and 300 tons of wrought iron. It was destroyed by fire on the 5th of October, 1858. The exhibition was suggested, planned, pursued, completed and sustained by private enterprise. All that the government ever did for it was to say that the building should be considered as a bonded warehouse, and to write a few letters to foreign countries where the sanction and co-operation of governments are thought to be indispensably necessary to such an undertaking. There was much delay in the opening of the exhibition, the proposed time being the 2d of May, while the ceremony did not take place until the 14th of July. The capital of the stock company which undertook the affair, and which sustained the pecuniary

loss which ensued, was limited by its charter to $300,000, and the cost of the building was restricted by the same instrument to $200,000. When the smallness of the amount invested is considered, the wonder is that so much was accomplished by the managers of the enterprise. Both the delay in opening the exhibition and the failure to realize the expenses are easily accounted for when all attendant circumstances are taken into consideration. The number of miles of railroad in operation in the whole country was not equal to the number of miles which can now be found in four or five of the Atlantic States. Visitors and articles from the Pacific coast had to undergo the tedious journey "across the plains," or the still more tedious voyage around the Horn, or the trip across the Isthmus of Panama, two years before the completion of the Panama railroad. San Francisco is now practically much nearer to the Atlantic coast than any portion of the State of Illinois was in the year 1853. Communication by mail was slow, and the mail service not very widely extended, the rate of three cents for a half ounce for any distance under 3000 miles, and the use of postage stamps having been but recently introduced. This was the first attempt to hold an international exhibition in the United States. The work was a new one, and it was difficult for the managers, the exhibitors or the general public to realize the magnitude of the undertaking and the great necessity of promptness in all the preparations. Still, it had its measure of success. The juries were selected with great care, and contained many men who had distinguished themselves by their attainments in the several branches in which they were called upon to exercise their discrimination, and some whose reputation for general culture was deservedly high. Profs. Silliman, Dana and Porter of Yale College, Prof. Agassiz of Harvard, Profs. James C. Booth and Henry D. Rogers of Philadelphia, Profs. John W. Draper, James Renwick and E. Felix Foresti of New York, Profs. Joseph Henry and A. D. Bache of Washington; in the department of printing, stationery, etc., Messrs. Conger Sherman of Philadelphia, William H. Appleton and Robert Hoe of New York, also Richard Grant White; in the class of Fine Arts, etc., Prof. S. F. B. Morse, Charles A. Dana, then of the *New York Tribune*, now of the *Sun*, and the Hon. Edward Everett; in the department of tapestry, decorative furniture, marble ornaments, etc., John Sartain of Philadelphia and Prof. Van der Weyde of New York,—such were some of the men to whom was entrusted the delicate and difficult task of deciding upon the merits of the various articles exhibited. This work was thoroughly performed. The members of the juries spent a great part of the day in taking copious notes concerning the hundreds of things in their bailiwicks; then a secret session was held, sometimes lasting for three hours or more, where the utmost latitude of debate was indulged in, every one being given a full opportunity for equal discussion.

NEW YORK.

Situation and Extent.—New York, "the Empire State," is bounded on the N. W. and N. by Lake Erie, Lake Ontario, the River Saint Lawrence and the province of Quebec; E. by Lake Champlain, Vermont, Massachusetts, Connecticut and the Atlantic Ocean; S. and S. W. by the Atlantic Ocean, New Jersey and Pennsylvania. It is situated between latitudes 40° 30′ and 45° N., and longitudes 5° 9′ E. and 2° 46′ W. from Washington, or 71° 51′ and 79° 46′ W. from Greenwich. The extreme length from east to west is 412 miles, and the width from north to south 311 miles. Portions of Long Island are only 8 or 10 miles wide, and the south-western boundary-line, below Lake Erie, is not more than 19 miles long. The State has a water boundary of 880 miles (of which the ocean constitutes 250 miles, the rivers 280 and the lakes 350) and a land boundary of 540 miles. It ranks nineteenth among the States in area, and contains 47,000 square miles, or 30,080,000 acres.

Physical Features.—*Surface.*—Long Island is flat and sandy. On both sides of the Hudson River are the Highlands, which finally pass over into Western Connecticut. A few of the summits reach an elevation of 1700 feet. North of these are the Catskill Mountains, situated principally in Greene county. The most conspicuous peaks are Round Top and High Peak, which are about 3800 feet in height and afford a magnificent view. Beyond the water-shed which turns the drainage toward the north, the country is rolling and diversified. Extending over a considerable part of the 4 north-eastern counties, Clinton, Franklin, Hamilton and Essex, is the *Adirondack wilderness.* It contains the most lofty summits of the northern spur of the Appalachian range, with the exception of the White Mountains of New Hampshire. The late survey of the Adirondacks made under the direction of Mr. Verplanck Colvin reports the height of the most elevated peaks as follows: Mt. Marcy, 5402 feet; McIntyre, 5106; Haystack, 5006; Skylight, 4997; Clinton, 4937; Gothic Mountain, 4744; Giant of the Valley, 4530. Snow and ice linger in the Indian Pass through the whole summer, and even until fresh snows begin to fall. A dense forest extends over this region, in which the bear, panther, wolf, moose, deer and other wild animals are sometimes seen. There are numerous lakes, ponds and streams, affording an extensive water communication. In this elevated table-land are the sources of the Hudson River. The Saranac and Ausable empty into Lake Champlain, and other small streams flow toward the St. Lawrence. It has been proposed to set apart a large tract in the Adirondacks for a State park. *Rivers and Lakes.*—The Hudson River, having its sources 4000 feet above the sea, is 300 miles long. Large steamboats ascend as far as Troy, 150 miles. As early as 1682 it was called the North River to distinguish it (not from the East

River, as many suppose, but) from the Delaware, which was known by the Dutch as the South River. The Delaware rises on the western declivity of the Catskill Mountains, and forms the boundary between New York and Pennsylvania for 70 miles. Otsego Lake is the source of the north brauch of the Susquehanna. Mohawk River, 160 miles long, runs through the centre of the State in au easterly direction, and empties into the Hudson 10 miles above Troy. The Eric Canal follows the Mohawk from Rome to its mouth. Oswego River drains many of the lakes of the interior and discharges into Lake Ontario. Genesee River has its sources in Peunsylvania, and flowing north emptics into Lake Ontario. The Alleghany makes a circuit into New York, and then passes into Pennsylvania to mingle its waters with the system of the Mississippi Valley. The St. Lawrence River, which drains the five great lakes, issues from Lake Ontario and separates New York from Canada West. The Empire State contains a large number of lakes. Upon its northern boundary are Lake Ontario and Lake Erie [see PHYSICAL GEOGRAPHY, page 147]. Lake Champlain, upon the east, was discovered July 4, 1609, by Samuel Champlain, a French navigator. It is 130 miles long, from ½ to 10 miles wide, aud from 50 to 280 feet deep. Lake George, 36 miles long and 400 feet deep, contains nearly 300 little islands, and is famous for its picturesque scenery. In the centre aud western part of the State is a chain of lakes of considerable size, amoug the priucipal of which are Otsego, Oneida, Skaneateles, Cayuga, Seneca, Crooked, Canandaigua, Chautauqua and Cattaraugus. *Cataracts.*—The waters of 4 great lakes have no other outlet than the Niagara River, and plunge over the Great Falls, which are 164 feet high aud 1100 feet wide on the American side, and 2000 feet wide on the Canadian side. The total descent of the river is 333 feet, and its width below the falls 1000 feet. The Genesee River has a descent of 260 feet in 3 falls within the space of 2 miles near its source, and there are other falls uear Rochester with a descent of 200 feet. Trenton Falls are a succession of 5 cascades, having 200 feet of fall in a course of two-thirds of a mile. Cohoes and Little Falls, in the Mohawk, form graud cataracts in times of freshet. In the Catskills a small stream is precipitated down a ledge 180 feet high. *Islands, Bays, etc.*—New York Bay, which affords a harbor equal to any in the world, contains a number of small islands among which are Governor's, Wood's, Ellis', etc. Staten Island, 14 miles long and from 4 to 8 miles wide, constitutes Richmond county. In the East River are Blackwell's, Raudall's and Ward's Islands, which are occupied by the city institutions. Long Island, 140 miles iu length aud 20 in its greatest breadth, has a rocky ridge or back-bone running through the centre and terminating iu Brooklyn Heights. On its east side are Gardiner's and Great Peconic Bays. Lake Champlain contains many small bodies of land, and the Thousaud Islands of the St. Lawrence are cele-

brated for their picturesque beauty. *Forests.*—Among the trees enumerated in a long catalogue are the white and red cedar, white, pitch and yellow pine, larch, hemlock, white and black spruce, fir, tamarac, white, red and black oak, chestnut, red and white beech, hickory, black-walnut, butternut, buttonwood, sugar, red and white maple, white, black and prickly ash, birch, elm, basswood, tulip, linden, locust, laurel, sassafras, aspen, balsam, willow, pawpaw, thorn, spicewood, spruce, etc.

Soil and Climate.—Long Island has a sandy and in many places barren soil. The western part is carefully tilled as a market garden for Brooklyn and New York. In the rolling country of the northern and southern counties dairy-farming is most profitable. The soil in the northeast is barren and cold. The central counties, along the Mohawk and the Genesee Flats, are of great fertility. There is a wide range of temperature and there are great variations in the climate. Between the length of the summer season on Long Island and in St. Lawrence county there is a difference of nearly 5 weeks. In 1806 the Hudson River froze over January 9, and was open again February 20. Navigation was obstructed for only 42 days, which is the shortest period recorded. In 1836 the river opened April 4, having been closed 125 days. The mean length of the summer season, from the time of fruit-blossoming to the first frost, is 174 days, and the mean temperature of the whole State 46.49°. The rainfall is 40.93 inches. Upon the isothermal charts the lines crossing New York are as follows: Spring, 40°–45°; summer, 67°–72°; autumn, 45°–55°; winter, 20°–30°; annual mean, 45°–50°. According to the reports of the United States Signal Service Bureau for the year ending Sept. 30, 1874, the mean temperature at Buffalo was 45.7° (extremes —2° and 87°); Rochester, 46.5° (extremes —5° and 96°); Oswego, 46.5° (extremes, 0 and 93°); New York, 51.4° (extremes 4° and 91°). The annual amount of the rainfall at Buffalo was 39.37 inches; Oswego, 41.22; Rochester, 47.17; New York, 42.63 inches.

Agricultural Productions.—New York occupies a foremost place in agriculture. A number of the particulars in which it must be written *first* are given elsewhere [see AMERICAN AGRICULTURE]. The value of the Indian corn, wheat, rye, oats, barley, buckwheat, potato, tobacco and hay crops, in 1873, was $135,212,000. New York contained at the last census 216,253 farms, averaging 103 acres each; 36 farms contained each more than 1000 acres. The value of farms was $1,272,857,266; of farm implements, $45,997,712; live-stock, $175,882,712; total value, $1,494,738,190; value per capita of persons engaged in agriculture, $3993; value of farm productions, including betterments, etc., $253,526,153. At the beginning of 1874 the State contained 659,300 horses, 18,900 mules, 683,600 oxen and other cattle, 1,410,600 milch cows, 651,500 hogs and 2,037,200 sheep.

Manufactures.—New York occupies the first place in the value of manufactured articles, although Pennsylvania surpasses her in the amount of capital invested and in the number of establishments. In 1870 there were in New York 36,206 manufacturing establishments; hands employed, 351,800, of whom 63,795 were females above the age of 15; capital, $366,994,320; wages, $142,466,758; materials, $452,065,432; products, $785,194,651. Among the leading industries were: Flouring-mill products, $52,636,861; men's clothing, $44,718,491; molasses and sugar, refined, $42,837,184; leather, tanned, $26,988,320; lumber, sawed, $18,778,406; boots and shoes, $17,813,048 (next to Massachusetts); iron, forged and rolled, $16,834,480; furniture, $16,275,111; malt liquors, $15,818,863; woollen goods, $14,152,645; cheese (factory), $12,164,064; agricultural implements, $11,847,037; cotton goods, $11,178,211; lead pipe, $10,732,800. One-sixth of all the manufactures of the United States were credited to New York.

Minerals and Mining.—Iron is mined extensively in the 4 counties of Orange, Clinton, Dutchess and Essex. Marble quarries are worked in Westchester county, and other fine building-stones are found in Ulster. There were, in 1870, 454 mining establishments; hands employed, 5177; value of products, $4,324,651. In Onondaga county are the most extensive salt-works in the Union. They are under the control of the State, and yielded in 1874 6,594,191 bushels.

Commerce and Navigation.—The State has 10 customs' districts. For the fiscal year ending June 30, 1874, the imports were valued at $414,947,941; exports, $359,948,084; vessels entered in the foreign trade, 13,861; cleared, 9587; entered, in the coastwise trade, 8729; cleared, 11,777. The number of vessels belonging to the two Atlantic ports, New York and Sag Harbor, was 6861 (791 steamers), with a tonnage of 1,331,759; the eight lake ports owned 2957 vessels (212 steamers), having a tonnage of 379,742; total, 9818 vessels, of 1,711,501 tons. There were built in the Atlantic ports 403 vessels, of which 60 were steamers, and in the lake ports 224, 40 of them steamers; total number of vessels built during the year, 627, of 93,576 tons. The value of the fisheries reported was $235,750. Belonging to Sag Harbor are 133 vessels employed in cod- and mackerel-fishing.

Railroads and Canals.—The first railroad was opened for travel in 1831. In 1873 New York ranked next to Illinois and Pennsylvania in railroad mileage. The figures were: Miles of railroad, 5165; cost per mile, $83,391; total capital account, $441,887,961; receipts, $68,825,007; receipts per mile, $13,326; receipts to an inhabitant, $15.12; net earnings, $23,782,428. New York has a very extensive system of canals under the control of the State. The Erie Canal, which connects Lake Erie at Buffalo with the Hudson River at Albany, was completed in 1825, at a cost

of $7,143,789. Subsequent expenditures have swelled the cost of construction and repairs to more than fifty millions of dollars. This canal is 70 feet broad at the water-line, 56 feet at the bottom and 7 feet deep. It has 71 locks which will admit boats 96½ feet in length and 17½ feet in width. The maximum burden of boats is 240 tons. The canals of the State have a lineal length of 900 miles, of which the Erie comprises 352 miles. Of the others, which are feeders to the trunk line, the principal are the Champlain, Oswego, Cayuga and Seneca, Chemung, Chenango, Black River and Genesee Valley. For the construction and maintenance of canals there has been an expenditure of nearly 90 millions of dollars. Property to the value of seven thousand millions of dollars has been transported. Between the years 1836 and 1874 the amount of tolls collected was $115,318,504. Six million tons of freight were transported in 1874, the value of which was $196,674,322.

Public Institutions and Education.—A State Board of Charities has general supervision over the public institutions, with the exception of prisons. New York has three State-Prisons—viz., Auburn, with 1292 cells; Clinton, with 548 cells; and Sing Sing, with 1200 cells and 1306 prisoners. There are 6 county penitentiaries, located respectively at New York, Brooklyn, Albany, Syracuse, Rochester and Buffalo. The population of all the prisons, in 1874, was 5940. Asylums for the Insane have been opened at Utica (with accommodations for 600 patients), at Ovid, where 1000 can be provided for, at Poughkeepsie, Buffalo and Middletown. Insane immigrants are taken care of by the State at the hospital on Blackwell's Island. Besides the six institutions above mentioned, there are several incorporated and private asylums, of which the one at Bloomingdale is most widely known. For the blind there are State institutions at Batavia and New York city. In the latter city also is the School for the Instruction of the Deaf and Dumb, which accommodates 550 pupils. At Binghamton is an Asylum for Inebriates, having 200 patients. An Asylum for Idiots has been established at Syracuse. The House of Refuge for boys, on Randall's Island, will contain 1000, and the Western Institution, at Rochester, 600. Free schools are established for all between the ages of 5 and 21 years. A compulsory education law went into effect Jan. 1, 1875, which requires all children between the ages of 8 and 14 to attend school for at least 14 weeks in every year. In 1874 the number of school districts was 11,995; teachers, 18,295; children of school age, 1,560,820; school-houses, 11,739; total expenditures for school purposes, $12,088,763. There are Normal Schools located at Albany, Brockport, Buffalo, Cortland, Fredonia, Geneseo, Oswego and Potsdam. These schools had, in 1874, 121 instructors and 2875 pupils. A new Normal College was opened in New York city in 1873 which will accommodate 1600 pupils. Twenty-six colleges and universities are reported, among

which are Columbia, Cornell, Hamilton, Union and Vassar. Thirteen institutions for the higher education of young ladies report an atteudance of 2132 pupils. Professional instruction is afforded by 14 schools of theology (among which are Auburn, the General Theological Seminary of the Protestant Episcopal Church, Hamilton, Rochester and Union Theological Seminaries, Dr. Talmage's Lay College and Dr. Tyng's House of the Evangelists), 4 schools of law (Albany, Hamilton, Columbia and the University of New York), 14 schools of medicine and 6 schools of science. The Industrial College of Cornell University has received the land-grants of Congress for agricultural education. All departments of the university have a property estimated at $3,627,200. Located within the limits of New York State, although not belongiug to it, is the United States Military Academy at West Point [see GOVERNMENT AND LAWS]. In 1870 the State contained 20,929 libraries, 5627 religious organizations, with 5474 edifices, valued at $66,073,755, and 835 newspapers and periodicals, of which 87 were published daily; 1086 periodicals (100 of them daily newspapers) were enumerated in 1875.

Cities and Towns.—New York has 24 chartered cities, which contained in 1870 1,965,660 inhabitants, or 43.25 per cent. of the total population of the State. In 1825 the entire city population was 279,031. *Albany*, the capital, is situated on the Hudson River, 145 miles above New York, at the terminus of the Erie aud Champlain Canals. A bridge 1953 feet long and costing $1,100,000 spans the Hudson. Among the most prominent buildings are the City Hall, Merchants' Exchange, Dudley Observatory, Penitentiary and the new Capitol building, begun in 1871 and designed to surpass any building in America. The city contains 60 churches and supports 8 daily newspapers. Population in 1870, 69,422, and in 1875, 85,584. *New York*, the metropolis of America and the third city of the civilized world, occupies the whole of the island of Manhattan, 13½ miles long and 2¼ miles in extreme breadth, aud 20 square miles of Westchester county, which was annexed in 1873. The principal public buildings are the City Hall, new Court-House, new Post-Office, costing $7,000,000, sub-Treasury building, Custom-House, Grand Central dépôt, 692 feet long, 240 feet wide and costing 2½ millions of dollars, Masonic Temple, Academy of Design, Booth's theatre and the Young Men's Christian Association building. Trinity church, with a spire 284 feet high, is one of the most conspicuous objects in the lower part of the city. St. Patrick's Cathedral (begun in 1858), on Fifth Avenue, is 322 feet long. Many of the business edifices rival the public buildings in cost and magnificence. Among the most conspicuous of these are the Western Union, Drexel, *Tribune*, *Evening Post* and *Herald* buildings. There are about a hundred hotels, of which 20 are first class. The poor and vicious classes are provided for on the most liberal scale. Blackwell's Island is entirely oc-

cupied by public institutions, including several hospitals, workhouses, a penitentiary, almshouse, insane hospitals, etc. The number received into all these institutions during the year 1874 was 195,438. More than 2500 men are employed upon the police force. The registrar of vital statistics reported 28,597 deaths, 25,663 births and 8397 marriages during the last year. New York has 25 miles of water-front available for docks. At low tide there is a depth of 32 feet of water over the bar at Sandy Hook, so that the largest vessels in the world can pass unimpeded. Six lines of steamers run to South America and the West Indies, and 18 lines, with 175 steamships, to Europe. During the fiscal year ending June 30, 1874, $109,549,798 in duties were collected; the value of imports was $395,133,622; of exports, $340,360,269; total foreign commerce, $750,127,354, which was 57 per cent. of the whole foreign trade of the United States. There were 19,640 vessels entered and cleared; 6630 vessels belonged to the port, and 396, including 60 steamers, were built during the year. For the month of July, 1875, the value of imports was $26,189,364; of domestic exports, $23,671,774. More than 140,000 immigrants arrived during the year. In manufactures, also, New York ranks as the leading city. It contained at the time of the last census 7624 manufacturing establishments, which employed 129,577 hands and produced articles valued at $332,951,520. The city valuation in 1875 was $1,154,029,176, and the taxation, $34,620,874; the receipts into the treasury for the year ending Aug. 1, 1875, were $40,133,614. During 1874 1357 new buildings were erected. The number of schools reported was 249; teachers, 2679; pupils, 236,543; number of colleges, 6; medical schools, 6; theological schools, 2. There are 380 churches and 398 newspapers and periodicals, of which 28 are published daily. An abundance of pure water is supplied by the Croton aqueduct, 40½ miles long and completed at a cost of $25,000,000. Central Park, which contains 2 Croton reservoirs covering 142 acres, is 2½ miles long and embraces an area of 843 acres. The number of inhabitants in 1656 was 1000; in 1673, 2500; in 1773, 21,876; in 1800, 60,489; in 1870, 942,292; and in 1875 (State census), 1,064,272. *Brooklyn*, the third city of the republic in size, is really a part of the commercial metropolis, with which it is connected by 13 steam ferries. The union is to be made still closer by the construction of a bridge 6000 feet in length, having a central span 1595 feet long and 135 feet above high water. Ten millions of dollars was the early estimate of its cost. Later developments indicate that "the utmost resources of the calculus" are inadequate to determine the amount of money that will be required to finish the structure. The city is 7¾ miles long and 5 miles in its greatest breadth, and covers an area of 21 square miles. Its water frontage extends for 8½ miles, along which are immense warehouses receiving goods to the amount of $260,000,000 annually.

Three railroads terminate at the water-front, and most of the 25 street railways run to the New York ferries. Brooklyn is noted as the "City of Churches" (it contains 240), among the most prominent of which are Plymouth Church (Rev. Henry Ward Beecher's), St. Ann's and Holy Trinity, the Church of the Pilgrims, the Roman Catholic Cathedral and Talmage's Tabernacle. Most of the dead of New York are interred in the cemeteries of Brooklyn. Greenwood Cemetery, containing 413 acres, Cypress Hills, Evergreen and the Cemetery of the Holy Cross are among the most beautiful. Prospect Park, begun in 1866, contains 550 acres, and commands a magnificent view of the great cities and the bay. In 1706 the town contained 64 freeholders; in 1802, almost a century after, the number had increased to 86. There were only 56 buildings at the close of the Revolutionary war. In 1820 the number of inhabitants was 7475; in 1870, 396,099; in 1875, 483,252. During the year 1874, 1470 new buildings were erected. Williamsburg constitutes the eastern division of Brooklyn. It contains a United States navy yard, with a dry-dock constructed at a cost of 2 million dollars. The value of the manufactured products from 1043 establishments, employing 18,545 hands, was $60,848,673. Water is supplied from the Ridgewood works. *Buffalo*, the eleventh city of the Union in size, is situated on Lake Erie at the head of Niagara River, 295 miles from New York. It is the western terminus of the Erie Canal, and is an important shipping-point for cattle, grain and coal. There are very large iron-mills; ship-building is an important industry. The city has 80 churches and 9 daily newspapers. Population in 1870, 117,714, and in 1875, 134,238. *Rochester*, which contained 63,522 inhabitants in 1870 and 81,813 in 1875, is situated at the Falls of the Genesee (96 feet in height), 7 miles from Lake Ontario. An almost unlimited water-power is afforded for the huge flouring-mills, machine-shops and other factories. Five daily newspapers are published, two of them in the German language. *Troy*, situated at the head of tide-water on the Hudson River, has extensive manufactories of iron. All the railroads are concentrated at a union railroad dépôt 400 feet long. Population in 1870, 46,465, and in 1875, 48,708. *Syracuse*, at the head of Onondaga Lake, is the dépôt for immense salt-works, and contains numerous furnaces, machine-shops, breweries, etc. The number of inhabitants in 1870 was 43,051; in 1875, 49,808. The other leading cities with their populations in 1870 and 1875 respectively are Utica (28,804 and 32,689), Kingston (21,943), Oswego (20,910 and 22,280), Poughkeepsie (20,080 and 20,097), Yonkers (18,357 and 17,742, a decrease), Auburn (17,225 and 19,616), Newburgh (17,014 and 17,433), Elmira (15,833 and 20,093), Cohoes (15,357 and 25,677), Lockport (12,426 and 14,323), Schenectady (11,026 and 12,807), Rome (11,000 and 12,511), Ogdensburg (10,076

and 10,503), Watertown (9336 and 10,005), Long Island City (20,287 and 26,351) and Flushing (14,673 and 16,045).

Growth in Population.—The number of inhabitants in 1701 was about 30,000; in 1731, 50,000; in 1771, 163,388. According to the Federal census, the population at successive decennial periods has been as follows: 1790, 340,120; 1800, 589,051; 1810, 959,049; 1820, 1,372,111; 1830, 1,918,608; 1840, 2,428,921; 1850, 3,097,394; 1860, 3,880,735; 1870, 4,382,759. Of the latter number, 1,138,353 were born in foreign countries and 3,244,406 in the United States; 2,987,776 had their birthplace in New York. While New York had received 256,630 from other States, 1,073,573 of her own children were residing in other parts of the Union, showing a loss to her, in native population, of 816,942. This State ranked fifth in 1790, third in 1800 and second in 1810; the first place was secured in 1820, and has since been held. The density of population is 93.25 to a square mile. Over 5000 Indians, belonging to the Six Nations and settled upon seven reservations, are not included in the census.

Government and Laws.—The legislature consists of 32 senators and 128 assemblymen. Sessions are held annually, and each member receives a salary of $1500 a year. Executive officers are elected for a term of two years, with the exception of the governor and lieutenant-governor, who serve for three years. Ten thousand dollars a year and a house are the governor's remuneration. Seven judges constitute the court of appeals, of whom the chief-justice receives $9500 annually and his associates $9000 each. There are 8 judicial districts, of which the New York district has 5 judges and the others 4 each. County courts are held in all of the 60 counties except New York. The two cities of New York and Brooklyn have special courts. All judges are elected by the people. The value of taxable property in 1874 was $2,169,307,873. New York is entitled to 33 representatives in Congress.

History.—As early as the spring of 1524 John de Verrazzano, a Florentine in command of a French vessel, landed upon the soil of New York. Henry Hudson sailed up the river which now bears his name in September, 1609. A trading-post and fort were built near Albany in 1614. In May, 1626, Peter Minuit bought the island of Manhattan for 60 guilders (about 24 dollars). The Swedish territory to the south was annexed by Governor Stuyvesant in 1655. In August, 1664, the Dutch dominions were surrendered to the English. Numerous battles were fought upon the soil of New York during the French and Indian wars. The part which New York took in the Revolutionary war is described elsewhere [see HISTORICAL SKETCH, p. 101]. During the war of 1812 the towns along the Canadian frontier were much exposed to British depredations. Several amendments have been made to the State Constitution, the last in 1874.

NORTH CAROLINA.

Situation and Extent.—North Carolina is bounded on the N. W. by Tennessee, N. by Virginia, E. and S. E. by the Atlantic Ocean, S. W. and S. by South Carolina and Georgia. It is situated between latitudes 33° 53′ and 36° 33′ N. and longitudes 1° 35′ E. and 7° 30′ W. from Washington, or 75° 25′ and 84° 30′ W. from Greenwich. From east to west the extreme length is 490 miles and the extreme breadth from north to south 185 miles. The area is 50,704 square miles, or 32,450,560 acres.

Physical Features.—*Surface.*—Near the sea-coast are extensive swamps and salt marshes. Between Albemarle and Pamlico Sounds is a tract 75 miles in length and 45 miles in breadth and extending over four counties, which is called Alligator, or Little Dismal, Swamp. Back of the submerged lands, a low and nearly level sandy plain, with an average slope of one foot to the mile, extends inland for 150 miles to the falls of the Roanoke, the Yadkin and the Cape Fear. These falls mark the beginning of the "hill country," which rises in a series of steps, at the average rate of ten feet per mile, toward the Blue Ridge. In this section there are elevations from 200 to 1200 feet high. *Mountains.*—At the foot of the Blue Ridge the ground rises from 1200 to 1500 feet, within a distance of five or six miles, to a mountainous plateau elevated some 2500 feet above the sea. The highest elevations east of the Rocky Mountains are in the spurs of the Alleghany Mountains, which extend through the western part of North Carolina. More than 20 peaks reach an altitude of 6000 feet, while of the White Mountains [see NEW HAMPSHIRE] only Mount Washington attains that height. The principal summits are: Clingman's Peak (6941 feet high), Buckley's Peak (6775 feet), Mount Mitchell (6732 feet) and Roan Mountain (6306 feet), all of which overtop the monarch of the White Hills. Of inferior height are the Richard Balsam (6225 feet), Grandfather's Peak (5897 feet) and Sugar Loaf (5312 feet). West of the Blue Ridge 14 counties which belong to North Carolina are drained through the Tennessee Valley. *Rivers.*—Seven rivers of considerable size, all flowing toward the Atlantic Ocean, have a part or the whole of their course in North Carolina. Beginning on the north, the first river is the Chowan, navigable for 75 miles, which rises in Virginia and empties into Albemarle Sound. Roanoke River is formed by the union of the Dan and the Staunton, which have their sources in Southern Virginia. The length of the main stream is 250 miles. Steamboats ascend as far as the falls, at Weldon, 150 miles. The Tar, navigable for 100 miles, and the Neuse, which is a broad lagoon for 40 miles and navigable for 120 miles, empty into Pamlico Sound. Cape Fear River, formed by the confluence of the Haw and Deep Rivers, has a sufficient depth of water for sloops to ascend as far as Fayetteville, 120 miles. The Yadkin rises in the flanks of the Blue Ridge, and after a course of 350 miles passes over into South Carolina,

where it becomes the Great Pedee. The Catawba also flows into South Carolina. West of the Blue Ridge are several small streams, which run into the Ohio and Mississippi system. *Sea-coast.*—Sandy and barren islands stretch along the 400 miles of coast, and shoals extend far out to sea, making the North Carolina coast a terror to all mariners. Cape Hatteras is the extreme headland. Cape Lookout and Cape Fear are less extended; but their names do no injustice to their dangerous character. Back of the sandy islands are extensive sounds and deep bays. Pamlico Sound is 80 miles long, from 10 to 30 wide, and 20 feet deep. Albemarle Sound is 60 miles in length and from 4 to 15 in breadth. Currituck Sound, running parallel with the ocean, is separated from it by a low sand-beach from 2 to 10 miles in width. *Forests.*—More than two millions of acres of swamp land in the east are covered with a growth of cedar and cypress, very valuable for timber. The "piney woods" extend across the State in a belt from 30 to 80 miles wide. Here grows to its perfection the long-leaved yellow pine, or turpentine tree. Hard woods predominate in the western section. Among the trees are the oak, hickory, walnut, maple, poplar, bay, mistletoe, chestnut, tulip, aspen, ash, sycamore, beech, elm, mulberry, black-walnut, live-oak, black thorn, myrtle, hawthorn, palmetto, etc. Game is very abundant; canvas-back ducks and wild geese are so numerous that shooting them is a regular and profitable business for gunners during the winter. The bear, deer and other wild animals are sometimes seen.

Soil and Climate.—The swamp lands have a soil from 5 to 10 feet deep, of which nine-tenths is a vegetable mould with a small admixture of fine sand and clay. When drained, these lands produce very abundant crops. Some of them have been under cultivation for a century and still show no signs of diminished fertility. Much worn-out land is seen in the great midland district, comprising 30 counties; but with sufficient fertilization it can be profitably cultivated. The mountain region is well adapted for grazing. A semi-tropical climate is indicated in the vegetation of the south-east. Palmetto trees are found as far north as Cape Hatteras. The fig and pomegranate attain the dimensions of large trees. Vegetation is green all the year round in swamps and savannas, where cattle range without need of any artificial shelter. Potatoes, cabbages and other vegetables are planted in December to be ready for use in February and the early spring months. In the hill-country the climate is cooler, but at Raleigh peach trees blossom in March and the fruit ripens in June. In the valleys of the mountain district exemption from frost can be expected only between April 25th and October 10th. The isothermal lines crossing North Carolina are: Spring, 55°–65°; summer, 72°–80°; autumn, 55°–65°; winter, 35°–50°; annual mean, 60°–65°. Observations continued for a series of years give the mean annual temperature at Smithville (near Cape

Fear) as 65.7°; Beaufort, 62.2°; Raleigh, 60°; Chapel Hill, 59.7°; Asheville (among the mountains), 54.45°. The annual rainfall is 45.65 inches.

Agricultural Productions.—Cotton is grown over nearly half the State. There were 42 counties which produced over 400 bales each in 1860. In 1870 the production of cotton was 144,935 bales; flax, 59,552 pounds; wool, 799,667 pounds; rice, 2,059,281 pounds; tobacco, 11,150,087 pounds; cane-molasses, 33,888 gallons; sorghum, 621,855 gallons; sweet-potatoes, 3,071,870 bushels (outstripping Texas, which ranked next, by more than 900,000 bushels). Rice is grown very largely in Brunswick, the most south-eastern county. In the production of peas and beans North Carolina is surpassed only by New York. Pea-nuts, or ground-nuts, are raised for exportation in immense quantities. The last census returns reported the number of farms as 93,565, of which 116 contained more than 1000 acres each, while the average size was 212 acres; value of farms, farm implements and live-stock, $104,287,161; value of productions, including betterments, etc., $57,845,940; value of the Indian corn, wheat, rye, oats, barley, buckwheat, potato, tobacco and hay crops, in 1873, $22,964,647. In January, 1873, the State contained 131,800 horses, 48,400 mules, 316,100 oxen and other cattle, 199,100 milch cows, 823,300 hogs and 278,500 sheep.

Manufactures.—One of the most prosperous industries is the manufacture of tar, turpentine and resin from the long-leaved pine (*Pinus palustris*). In 1870 there were 147 establishments, affording employment to 959 hands. The production was 3,779,449 barrels of turpentine (total for all the States, 6,004,887 barrels), 456,131 barrels of resin (all the States, 646,243 barrels) and 300 barrels of tar; value of all these products, $2,338,309. Lumber was sawed to the value of $2,000,243. The value of flouring-mill products was $2,232,404; cotton goods, $1,345,052; tobacco, $717,765; carriages and wagons, $340,284; total number of manufacturing establishments, 3642; hands employed, 13,622; value of products, $19,021,327.

Minerals and Mining.—Gold has been obtained in moderate quantities for many years. A branch mint was established at Charlotte [see COINS AND CURRENCY, page 106], where $5,118,645 in gold had been deposited previous to its discontinuance, while $4,666,026 were sent to the Philadelphia Mint from North Carolina. The total gold product up to June 30, 1874, was $10,090,656. A nugget weighing 28 pounds was once found in Cabarrus county. Silver to the value of nearly $50,000 has also been sent to the mint. There is an important zinc mine in Davidson county. Copper, lead, plumbago, limestone, marble, manganese, porcelain clay, etc., are found, and marl is abundant. Bituminous coal exists in large beds on the Cape Fear and Dan Rivers. The Shocco and White Sulphur Springs are places of considerable resort.

Commerce and Navigation.—There are 4 customs districts—viz., Albemarle, Beaufort, Pamlico and Wilmington, to which 279 vessels belong. For the year ending June 30, 1874, the value of exports was $3,581,618; imports, $144,017. In the foreign trade 219 vessels entered and 289 cleared; in the coastwise trade, 682 entered and 300 cleared, making a total of 1490 vessels. Twenty-five vessels were built during the year. The fisheries are of considerable importance. Herring, shad, rock and bluefish, mullet, etc., are caught in large quantities. A hundred thousand barrels annually are packed on Albemarle Sound. Only Massachusetts and Maine employ more men in fisheries. The number engaged in this business in 1870 was 1606; value of products, $265,839.

Railroads and Canals.—Eighty-seven miles of railroad had been completed up to the year 1842. In 1873 the number of miles was 1265; cost per mile, $29,399; total capital account, $35,425,096; receipts, $2,897,488; receipts per mile, $2405; receipts to an inhabitant, $2.61; net earnings, $1,312,062; 1447 miles were in operation in 1874. Dismal Swamp Canal connects Albemarle Sound with Chesapeake Bay.

Public Institutions and Education.—The State Penitentiary contained 445 convicts, November 1, 1874. A State Insane Asylum was opened in 1856, which has treated over 1100 patients; 247 remained at the close of 1874. The Institution for the Deaf and Dumb and the Blind contained 208 pupils, of whom 64 were colored; an annual appropriation of $40,000 is made for its support by the State. The above three institutions are all located at Raleigh, the capital. The Constitution provides for a permanent school fund for the maintenance of free public schools. This fund in 1874 amounted to $2,190,564. The number of children between the ages of 6 and 21 years was 348,603; public schools, 3311; teachers, 2690. Separate schools are provided for colored children. The Ellensdale Teachers' Institute, aided by the Peabody fund, and the Normal School at Wilmington, supported by the American Missionary Association, give instruction to teachers. There are five colleges—viz., Davidson, North Carolina, Rutherford Male and Female, Trinity, University of North Carolina and Wake Forest College. The University of North Carolina, at Chapel Hill, chartered in 1789, was temporarily suspended in 1871. A College of Physicians and Surgeons has been organized. Instruction in theology and law is afforded by Trinity College. The census reported 1746 libraries, 64 newspapers and periodicals (increased in 1875 to 106, 9 of which were published daily) and 2683 religious organizations, having 2497 edifices.

Cities and Towns.—*Raleigh*, the State capital (population, 7790), situated near the Neuse River, contains a State-House, built of granite, which cost $500,000, and was, at the time of its erection, one of the finest capitols in the Union. Three of the State institutions before mentioned

are located at this city. It is connected with all quarters of the State by railroads. Ten periodicals were published in 1875, two of them daily. *Wilmington* (population, 13,446), the largest city and principal sea-port, is situated on the Cape Fear River, 34 miles from the sea. During the civil war this was the favorite port of the blockade runners. Nearly 400 vessels ran the blockade between October, 1863, and December, 1864. The export and import trade during the year ending June 30, 1864, was $65,185,000. Ten years later, June 30, 1874, the total was $3,677,822 (less than one-seventeenth as much). Wilmington has steam saw- and planing-mills, machine-shops and turpentine distilleries and three daily newspapers. *Newbern*, on the River Neuse, 40 miles above its entrance into Pamlico Sound, has direct steamboat communication with Norfolk, Baltimore and New York, and carries on a large trade in cotton, lumber, fish and naval stores. It is also a place of considerable manufactures, having founderies, machine-shops, turpentine-works, grist- and saw-mills, etc. There are 6 churches and 4 newspapers, one of which is published daily. The number of inhabitants in 1870 was 5849, of whom 3829 were colored. *Fayetteville* (population, 4660), 100 miles above Wilmington, on the Cape Fear River, has a large trade in lumber, tar, turpentine, etc. *Charlotte* (population, 4473) is the centre of the gold-mining district, and now has an assay-office, which was formerly a United States mint. It is at the intersection of 3 railroads, and has 6 newspapers, 3 of which are published daily. The other principal towns are Beaufort, Asheville, Washington, Plymouth, Goldsboro', Tarboro' and Edenton.

Population.—The original settlers were Irish and French. Some Scotch refugees came in after the battle of Culloden. A few Germans have made their home in North Carolina; but the number of persons of foreign birth in 1870 was only 3029, which is less than one-third (.2827) of 1 per cent. of the entire population. The number of inhabitants at successive decennial periods has been as follows: 1790, 393,751 (slaves, 100,572); 1800, 487,103 (slaves, 133,296); 1810, 555,500 (slaves, 168,824); 1820, 638,829 (slaves, 204,917); 1830, 737,987 (slaves, 245,601); 1840, 753,419 (slaves, 245,817); 1850, 869,039 (slaves, 288,540); 1860, 992,622 (slaves, 331,059); 1870, 1,071,361 (free colored, 391,650). The native population was 1,068,322, of whom 1,028,678 were born in North Carolina and 39,644 were immigrants from other States, while 307,362 native North Carolinians were residing in other parts of the Union, showing a loss to this Commonwealth of 267,718. The Old North State ranked third in population in 1790, held the fourth place until 1820, and in 1870 ranked fourteenth. There were 21.13 inhabitants to a square mile.

Government and Laws.—The legislature consists of a senate of 50 members and a house of representatives of 120 members, elected for

two years and paid $5 per day besides mileage during the sessions, which are held biennially. The governor (salary, $4000) and other executive officers are chosen for a term of four years. Appellate jurisdiction is exercised by the supreme court, which consists of 5 judges. There are 12 judicial districts, in each of which terms of the superior court are held, presided over by a single judge. All judges are elected by the people for a term of 8 years. Persons who deny the being of Almighty God are ineligible to office. The State debt on the 1st of October, 1874, was $38,921,848. North Carolina is entitled to 8 representatives in Congress.

History.—In 1584 Queen Elizabeth granted letters patent to Sir Walter Raleigh "for the discovering and planting of new lands and countries." The first explorers landed on Roanoke Island July 4 (O. S.) of that year. Charles II. granted Carolina to 8 noblemen in 1668. Six years later the population was about 4000. The division between North and South Carolina was made in 1697. War was waged with the Tuscaroras until 1713. "The first blood for liberty" was shed at Alamance, in May, 1771, and the first declaration of independence in the United States was made at Charlotte, Mecklenburg county [see HISTORICAL SKETCH, page 100]. The battle of Guilford Court-House, March 15, 1781, drove the invading British army under Cornwallis from North Carolina. In 1789 the Constitution of the United States, which had been rejected in 1788, was adopted. In February, 1861, the people voted against calling a convention to consider the question of secession. After the attack upon Fort Sumter the governor of North Carolina seized possession of the forts at Wilmington and Beaufort, the Mint at Charlotte and the United States Arsenal at Fayetteville. An ordinance of secession was passed, and the Constitution of the Confederate States was adopted May 21. Fort Hatteras and Fort Clark were taken by the Federal forces Aug. 29. Gen. Burnside and Commodore Goldsborough captured Roanoke Island Feb. 8, 1862, and the city of Newbern March 14. Wilmington was taken on the 22d of February, 1865. Hostilities were closed by the surrender of Gen. Johnston's army April 26. The present Constitution was ratified in 1868.

OHIO.

Situation and Extent.—Ohio is bounded on the N. by Michigan and Lake Erie, E. by Pennsylvania and West Virginia, S. by West Virginia and Kentucky and W. by Indiana. It is situated between latitudes 38° 27′ and 41° 57′ N. and longitudes 3° 34′ and 7° 49′ W. from Washington, or 80° 34′ and 84° 49′ W. from Greenwich. The extreme length is 228 miles, the breadth 220 miles and the area 39,964 square miles, or 25,576,960 acres.

Physical Features.—*Surface.*—The general surface of Ohio is

that of a great plain, descending from the foot of the Alleghanies toward the Mississippi Valley. The lowest point is 425 feet above the sea level and the highest 1540 feet, on the summit between the Scioto and Miami. Among the principal elevations are Round Knob (1409 feet), Bald Mountain (1391 feet), Mount Tabor (1365 feet), Little Mountain (1340 feet), Stultz's Mountain (1301 feet) and Fort Hill (1286 feet). Cincinnati is 523 feet above tide-water, Cleveland 685 feet, Urbana 1044 feet and Hudson 1137 feet. A chain of low hills, which constitutes the water-shed between Lake Erie and the Ohio River, extends along the 41st parallel of latitude. Along the lake are cliffs, sometimes attaining a height of 750 feet above the water surface. The south-east section of the State is undulating, and precipitous hills, 600 and 700 feet in height, extend along the banks of the Ohio. Numerous "mounds," supposed to be the work of a race now extinct, still exist, together with the remains of very extensive fortifications. *Rivers and Lakes.*—The Ohio River winds along the southern boundary with a gentle current for 435 miles. It is subject to great freshets. In the spring of 1832 the stream rose to a height of 63 feet above low-water mark. The width opposite Cincinnati is about 1600 feet. Flowing into the Ohio are the Muskingum, navigable to Dresden, 95 miles; the Scioto, 200 miles in length; the Great Miami, 150 miles long, and the Little Miami. The principal streams emptying into Lake Erie are the Maumee, Sandusky, Cuyahoga and Chagrin Rivers. Fish are abundant, including the catfish (sometimes weighing 90 pounds), sturgeon, pike, perch, shad, etc. Lake Erie affords a navigable water frontage of 230 miles on the north. There are many small lakes and basins along the water-shed; more than one hundred have been noted in Summit county within a radius of 20 miles. *Forests.*—Forty-five species of trees have been noticed which grow to a height of more than 40 feet. When the whites first came to the State, in 1810, they found in the primitive forests the buttonwood, butternut, dogwood, slippery and white elm, buckeye, sassafras, spicewood, redbud, coffee tree, linden, pawpaw, poplar, locust, mulberry, birch, beech, chestnut, hornbeam, black-walnut, hickory, hemlock, sycamore, oak (white, black, Spanish and red), arbor vitæ, mistletoe, ash, aspen, yew, red cedar, maple, spruce, gum, pine, willow, hackberry, persimmon and many others. Seven species of maple, 11 of walnut and 26 of oak are catalogued. It has been observed that the timber of the Western country is softer and weaker than in the Atlantic States, owing probably to its more rapid growth. *Birds.*—Among the native birds are the turkey-buzzard, hawk (3 species), pheasant, partridge, bluejay, wood duck, sparrow, redbird, woodpecker (5 species), eagle, raven, crow, kingfisher, wren, owl, grouse, etc.

Soil and Climate.—Over more than half the State the soil is of diluvial origin. In the north the drift deposit is principally clay. The

southern counties of the "Reserve" have more of gravel and sand. This is a fine grazing country. The river bottoms contain an alluvium of very great fertility. The climate is subject to great variations. On the morning of June 5, 1859, there was a remarkable frost, which killed much of the wheat and fruit in the State. "There were frosts on 8 days of May in 1861, and light ones on the 27th of June and 3d of July" (Bureau of Statistics). The extremes of temperature at Marietta during 28 years were 22° below zero and 99° above. During a series of years the mean temperature at Cleveland was 49.77°; at Marietta, 51.86°; at Cincinnati, 54.67°. For the year ending Sept. 30, 1874, the minimum temperature noted by the Signal Service Bureau for Ohio was 2° at Toledo, and the maximum 103° at Cincinnati. The isothermal lines for the State are: Spring, 50°; summer, 70°–74°; autumn, 50°–55°; winter, 30°; annual mean, 50°–55°. Cincinnati is on the same isothermal lines with Lyons, Milan and Constantinople. The annual rainfall is 33.38 inches at Cincinnati and 38.43 inches at Cleveland.

Agricultural Productions.—Ohio at one time ranked first in the production of grain. It 1873 it occupied the third rank in the production of Indian corn, fourth in oats, fifth in barley and seventh in wheat. The number of farms reported in 1870 was 195,953, of which 69 contained more than 1000 acres each, while the average size was 111 acres. The acreage of improved land was 14,469,133 (only Illinois and New York had more); value of farms, farm implements and live-stock, $1,200,458,541 (next to New York); value of farm productions, including betterments, etc., $198,256,907 (next to New York and Illinois). In 1874 Ohio contained 738,600 horses (only Illinois had more), 22,300 mules, 882,900 oxen and other cattle (next to Texas and Illinois), 778,500 cows (next to New York), 4,639,000 sheep (next to California) and 2,017,400 hogs. Fruits grow in great abundance, and nearly 350,000 acres are devoted to orchards. In 1872, which was an exceptionally good year, the apple crop was 23,000,000 bushels and the peach crop 405,619 bushels.

Manufactures.—This State ranks third in the number of manufacturing establishments and fourth in the value of products. It stood first in the fabrication of agricultural implements, and next to Illinois and Missouri in pork-packing. The total number of manufacturing establishments reported at the last census was 22,773; hands employed, 137,202; value of products, $269,713,610. The principal industries in value were: Flouring-mill products, $24,965,629; clothing, $13,194,998; iron, rolled and forged, $13,033,169; agricultural implements, $11,907,366; iron, pig, $10,956,938; pork packed, $10,655,950. The number of hogs packed in the winter of 1874–5 was 871,736; value, $16,597,490.

Minerals and Mining.—Fields of bituminous coal extend over 10,000 square miles of area. There are 30 counties in which it is profit-

ably mined. The production of 1873 was 87,794,240 bushels. Iron is mined in 20 counties to the amount of nearly 350,000 tons per year. More than 4 million bushels of salt and 1,315,000 gallons of petroleum were produced in 1873. Gypsum, lime, potter's clay and the finest quality of building-stone are found in abundance. The mining product of 1870 was $7,751,544, from 535 establishments.

Commerce and Navigation.—The 200 miles of coast on Lake Erie afford direct communication with the Atlantic Ocean through the River St. Lawrence, and the 435 miles of Ohio River navigation are connected, through the Mississippi, with the Gulf of Mexico, so that vessels built in Ohio can sail direct to foreign ports. The customs districts on the lake have their ports of entry at Cleveland, Sandusky and Toledo. During the fiscal year ending June 30, 1874, the value of imports was $554,376, and the value of exports $3,528,729; 1362 vessels entered and 1388 cleared, in the foreign trade; 8417 entered and 8460 cleared, in the coastwise trade; 219 vessels belonged to Cincinnati and 609 to the lake ports. Twenty-eight vessels were built upon the lake and 40, of which 19 were steamers, upon the Ohio. Cincinnati is a port of entry and delivery. The value of fisheries in 1870 was $383,121, giving to Ohio the fifth rank among the States.

Railroads and Canals.—The four great trunk-lines from the Atlantic cities to the Mississippi cross this State. In 1842 the first mile of railroad was completed; in 1874 the statistics were: Miles of railroad, 4378; cost per mile, $74,254; total stock and debt, $298,931,461; gross earnings, $37,177,129; net earnings, $10,182,894. Of navigable canals the State has 796 miles, including feeders and side-cuts. These were constructed between the years 1825 and 1844, at a total cost of $14,688,667; average cost per mile, $18,453. The Ohio and Erie Canal, connecting the river at Portsmouth with the lake at Cleveland, is 309 miles in length and cost $4,695,204. The Miami and Erie, connecting Toledo with Cincinnati, extends for 250 miles, and was constructed at a cost (with improvements and repairs) of $7,463,694. The State also contains more than 6000 miles of turnpikes and plank roads.

Public Institutions and Education.—The State Penitentiary, erected in 1813, contained 1005 prisoners Nov. 1, 1874. The Deaf and Dumb Asylum, opened Feb. 11, 1869, was constructed at a cost of $625,000. Both the above institutions, together with the Asylums for the Deaf and Dumb, the Blind and the Idiotic, and the Central Ohio Lunatic Asylum, are located at Columbus. Other Asylums for the Insane have been opened at Newburg, Dayton, Athens, Longview and Toledo, of which the first three are wholly, and the last two partially, supported by the State. Upwards of 1000 patients were sent to these hospitals for the insane during the year 1874. An Industrial School for girls has been

established at White Sulphur Springs, and a Reform School for boys was opened near Lancaster in 1857. The latter institution has a farm of 1170 acres; nearly 2000 boys have been already admitted. The school statistics for 1873–4 were: School-houses, 11,688; value, $18,829,586; teachers, 22,375; children of school age (6 to 21 years), 985,947; revenue for school purposes, $8,300,594. There are 32 colleges (of which Oberlin had 1330 students), 12 schools of theology, 3 of law, 11 of medicine and 4 of science. Ohio Agricultural and Mechanical College, at Columbus, possesses a property valued at $904,000. A building has been erected which will accommodate 500 students. The last census reported 17,790 libraries, 395 newspapers and periodicals, 26 of them daily, and 6488 religious organizations, having 6284 edifices. In 1875 the number of newspapers had increased to 537, of which 35 were published daily.

Cities and Towns.—Ohio contains 31 cities. *Columbus* was made the State capital by an act passed Feb. 14, 1812. It occupies a central position on the Scioto River, at the intersection of eight railroads, 110 miles north-east of Cincinnati. The principal State institutions are concentrated here, including the Penitentiary and the several asylums for the insane, blind, deaf and dumb and idiotic; there are also State and United States Arsenals. The Capitol was completed in 1861, 15 years after its commencement, at a cost of $1,365,171. Eight periodicals are issued, 2 of them daily, and there are 45 churches. The number of inhabitants in 1870 was 31,274. *Cincinnati*, the "Queen City of the West," is situated upon the Ohio River, 500 miles above its mouth. A suspension bridge, 2252 feet long, spans the river. There are 8 lines of river packets; steamboats 300 feet long and 90 feet wide come up to the docks. The city has a water frontage of 10 miles. A line of hills from 400 to 450 feet high extends in semicircular form some distance back from the river, affording the finest sites for residences. Among the principal public edifices are the Court-House, Hospital, Public Library, Opera-House, St. Peter's Cathedral and the United States government buildings. The manufactures are very extensive; there are 4000 establishments, employing 58,000 hands and producing an annual value of $145,000,000. Pork-packing is a leading industry, although Chicago has taken the first place, which was once held by Cincinnati. During the season of 1873–4, 581,253 hogs were packed. The city contains 25,000 dwellings, 160 churches and 11 public libraries. Sixty-two periodicals are published, 9 of them daily. The population in 1800 was 750; in 1810, 2540; in 1820, 9602; in 1830, 24,831; in 1840, 46,338; in 1850, 115,436; in 1860, 161,044; and in 1870, 216,239, of whom 136,627 were natives of the United States. The valuation of property in 1873 was $185,645,740. Thirteen railroads enter 4 dépôts. *Cleveland* (population, 92,829), situated on the shore of Lake Erie, is called the "Forest City." The Court-House, City Hall and United States buildings

are fine stone edifices. The Ohio and Erie Canal brings a large business to the city. Five railroads centre in a mammoth union dépôt. There are nearly 1000 manufacturing establishments, 90 churches and 6 daily newspapers. *Toledo* (population, 31,584), on the Maumee River, near the western extremity of Lake Erie, has a fine harbor, and is connected with Cincinnati and Evansville, Indiana, by canals. Six railroads meet in one dépôt. Five daily newspapers are published. The other principal towns are Dayton (30,743), Sandusky (13,000), Springfield (12,652), Hamilton (11,081), Zanesville (10,011), Akron (10,006), Chillicothe (8920), Canton (8660), Steubenville (8107), Youngstown (8075), Mansfield (8029) and Newark (6698). In 1873, 19,750 new buildings were erected in the State, of which 15,172 were dwellings and 145 factories.

Growth in Population.—At the beginning of the present century Ohio ranked eighteenth in population among the 20 States then composing the American Union. She took the third place in 1840, and has since retained it. The number of inhabitants at successive decennial periods has been as follows: In 1800, 43,365; 1810, 230,760; 1820, 581,295; 1830, 937,903; 1840, 1,519,467; 1850, 1,980,329; 1860, 2,339,511; 1870, 2,665,260. Between 1800 and 1810 the increase was 408.7 per cent.; during the last decade, 13.92 per cent. The number of inhabitants to a square mile was 66.69. A stream of emigration has been pouring from Ohio westward. Indiana, Illinois and Iowa were settled to a considerable extent by people from this State; 70,000 went to Iowa in 7 years. The returns of 1870 showed that 806,983 of the children of Ohio were residing in other parts of the Union, while it contained 450,454 natives of other States and 372,493 persons of foreign birth, making a total of 822,947 residents who were not native to the soil. It has been computed that the centre of population for the republic is at Wilmington, Clinton county, Ohio, 45 miles north-east of Cincinnati.

Government and Laws.—The legislative authority is vested in a general assembly, consisting of 36 senators and 105 representatives. Biennial sessions are held. Executive officers are elected for a term of two years. Four thousand dollars salary is paid to the governor. The supreme court consists of 5 judges, who receive $3000 salary each. Courts of common pleas and also probate courts are held in each of the 88 counties. All judges are elected by the people. The value of taxable property in 1874 was $1,580,379,324; 168 national banks were in operation, having a capital of $28,883,000. The State debt was $7,988,205 on the 15th of November in the above-mentioned year.

History.—La Salle sailed along the Ohio River in 1680. In March, 1786, a plan was formed in Connecticut for the planting of a colony upon the banks of the Ohio. A company of 47 emigrants reached the site of Marietta on the 7th of April, 1787, and began the first settlement. About

the same time Congress began to exercise jurisdiction over the territory north-west of the Ohio. The old story of Indian outrages was repeated. General St. Clair was defeated by the Miamis in 1791. In 1794 Gen. Wayne achieved a brilliant victory over the savages, and hostilities were soon suspended. Ohio was admitted to the Union as the seventeenth State on the 19th of February, 1803. Conflicting claims to the land were urged by several States, and most of it was ceded to the General Government. Connecticut reserved 3,666,921 acres in the north-east, along Lake Erie, which has since been known as the "Western Reserve."

OREGON.

Situation and Extent.—Oregon is bounded on the N. by Washington Territory, E. by Idaho, S. by Nevada and California and W. by the Pacific Ocean. It is situated between latitudes 42° and 46° 20′ N. and longitudes 39° 44′ and 47° 35′ W. from Washington, or 116° 40′ and 124° 35′ W. from Greenwich. The length from east to west is 360 miles, the breadth from north to south 275 miles and the area 95,274 square miles, or 60,975,360 acres.

Physical Features.—*Surface.*—Along the Pacific coast the ground is very much broken and the mountain spurs jut out in bold headlands and capes, among the most prominent of which are Capes Orford, Arago, Perpetua, Foulweather and Lookout. Some twenty-five miles back are the Coast Mountains, from 1000 to 5000 feet high. East of this range is the Willamette Valley, having a width of from 50 to 100 miles. The valley of the Umpqua and the valley of the Rogue Rivers, separated from each other by the Umpqua Mountains, occupy the territory to the south. The regions above described belong to Western Oregon, which covers an area of 31,000 square miles and extends from the Pacific coast inland for 130 miles to the Cascade Mountains. These mountains, which are a continuation of the Sierra Nevada, extend in a direction almost due north and south across the State. The altitude of the highest peaks has been somewhat exaggerated. Late measurements give the following results: Mount Hood, 11,225 feet; Mount Pitt, 11,000 feet; Mount Jefferson, 10,500 feet; the Three Sisters, 9420 feet; and Diamond Peak, about the same. Extensions of the Cascade Range, under the general name of the Blue Mountains, stretch toward the east and north-east, sometimes attaining an elevation of 7000 feet. Eastern Oregon is in general an elevated country, broken by hills, mountains and deep cañons. These gradually give place to prairies and level plains, which fall away toward the Great Interior Basin. *Rivers.*—The Columbia River forms the boundary between Oregon and Washington Territory for 300 miles. It has a width of from 3 to 7 miles for 40 miles above its mouth. Large steamboats can ascend 140 miles to the rapids where the river breaks through the Cascade Mountains.

Around these rapids is a railroad portage, above which navigation is possible to White Bluffs, a distance of 205 miles. The largest tributary of the Columbia is the Lewis, or Snake, River, which rises in the mountains of Idaho and constitutes the boundary between that Territory and Oregon for 150 miles. Steamboats sail into Southern Idaho, within 200 miles of Salt Lake City. The Deschutes, 250 miles long, John Day's River, about the same length, and the Walla Walla discharge their waters into the Columbia east of the Cascade Mountains. Draining the valley to the west of the mountains is the Willamette River, navigable for 130 miles, which runs due north and empties into the Columbia, 110 miles above its mouth. The Umpqua and Rogue Rivers, which are about 200 miles long, flow directly into the Pacific. Klamath River runs through the lakes of the same name and passes into California. *Forests.*—All of Western Oregon, with the exception of the river valleys, is covered with a dense growth of timber. Toward the California boundary are said to be some of the most magnificent forests in the world. It is estimated that they would yield a million feet of timber to the acre. Upon the mountains the principal growths are the yellow, white and sugar pine, the red, black, yellow and balsam fir, and the Oregon cedar, which sometimes attains the dimensions of 300 feet in height and 20 feet in diameter, the yew, juniper, oak, ash, hemlock, myrtle and spruce. In Eastern Oregon the timber supply is deficient. The forests are still inhabited by the black and grizzly bear, panther, wolf, wildcat, cayote, elk, deer, antelope and other wild animals.

Soil and Climate.—The valleys of the Willamette, the Umpqua and Rogue Rivers have a dark porous soil, formed by the mixture of vegetable mould with clayey loam, and are exceedingly fertile. Above the alluvial bottoms are open and slightly rolling prairies, whose soil is a gray, calcareous, sandy loam, admirably adapted for wheat and other cereals. Along the spurs of the mountains are good grazing lands, based upon a brown, clayey loam. Eastern Oregon is especially adapted for dairying and stock-raising. The nutritious "bunch grass" grows to a height of from 6 to 18 inches. Parts of the Great Basin are totally unfit for cultivation. Very great climatic variations are shown in different parts of the State. In portions of Eastern Oregon frosts come in October, winter lasts for three months and snow falls to the depth of 12 inches. West of the Cascade Mountains the climate is mild and uniform. The seasons are the rainy, lasting from November to April, and the dry; very little snow falls, and thunder and lightning are almost unknown. Upon the isothermal charts the lines passing across Oregon are: Spring, 52°–55°; summer, 57°–70°; autumn, 50°–55°; winter, 30°–45°; annual mean, 50°–55°. The average temperature at Port Orford is 53.5°; at Astoria, 52°, and at Portland, 52.8°. Astoria has an annual rainfall of 60 inches and Port-

land of 43.69 inches. The rainfall in some of the eastern districts does not exceed 15 or 20 inches.

Agricultural Productions.—There were 7587 farms reported by the last ceusus, of which 88 contaiued more than 1000 acres each, while the average size was 315 acres; 2,389,252 acres were iucluded in farms, of which 1,116,290 acres were improved. The total value of farms, farm implements and live-stock was $30,475,381; value of farm productions, $7,122,790. In 1873 the production of Indian corn was 94,000 bushels, an average of 30 bushels to the acre. Only Nevada produced less in total amount; but the yield to the acre was greater in Oregon than in 21 other States. The wheat crop was 3,127,000 bushels; 16 States produced less, and the average yield to the acre (19 bushels) was only surpassed by Nevada (20 bushels). The value of the Iudian corn, wheat, rye, oats, barley, buckwheat, potato and hay crops was $5,571,866. At the begiuning of 1874 the State contained 86,400 horses, 3700 mules, 123,700 oxen and other cattle, 73,500 milch cows, 171,200 hogs and 561,500 sheep, an average of more than 6 sheep to every inhabitant.

Manufactures.—Oregon possesses a large water-power, but manufacturiug is yet in its infancy. In 1870 there were 969 establishments, which employed 2884 hands; the value of the annual product was $6,877,387, of which the principal items were: Flouring-mill products, $1,530,229; lumber, $922,576; woollen goods, $492,857.

Minerals and Mining.—Gold was discovered in 1852, and silver is also found. The bullion product of the State up to 1875 has been estimated at more than 25 millions of dollars. Coal has been mined in considerable quantities. Granite, sandstone, slate, limestone, soapstone, etc., are abundant. The product of the 168 mining establishments reported in 1870 was $417,797.

Commerce and Navigation.—A harbor 5 miles wide, and with a depth of 20 and 25 feet in its two channels, is afforded by the Columbia River. Coos Bay, 10 miles long and 2 miles wide, has a depth of from 3 to 4 fathoms. Oregon contains 3 customs districts, at which, during the fiscal year ending June 30, 1874, the value of imports was $490,480, and the value of exports $2,659,510. In the foreign trade the entrances were 50 and the clearances 96 (of which 43 were American vessels); in the coastwise trade there were 309 entrances and 218 clearances. Sixty steamers and 48 other vessels belong to the customs districts, and 12 were built during the year. *Fisheries.*—The Columbia River salmon fisheries are very profitable; 3500 barrels of salted salmon and 150,000 cases, valued at $6 per case, were put up during the season of 1873. Cod, sturgeon, halibut, lobsters, etc., are caught in large quantities.

Railroads.—At the last report 257½ miles of railroad had been opeued for travel. The principal line extends from Portland south

through the Willamette Valley for 200 miles, and is to be extended so as to form a connection with the Central Pacific Railroad.

Public Institutions and Education.—A Penitentiary was established in 1854, and contained in 1874 about 100 prisoners. The Hospital for the Insane, opened at East Portland in 1862, has 200 inmates. Institutions for the Blind and the Deaf and Dumb are in successful operation. The school statistics for 1874 were as follows: Public schools, 530; teachers, 860; school-houses, 555; value, $332,764; receipts for school purposes, $204,760; number of children of school age (4 to 20 years), 40,898. The institutions for higher education are: Christian College, at Monmouth, which has classic, scientific and preparatory departments; Corvallis College, connected with which is the State Agricultural School, having a property valued at $239,000; McMinnville College; Pacific University, having classical, scientific and normal departments; Willamette University, which embraces a school of medicine and a school of science; and the University of Oregon, at Eugene City. The State contained, in 1870, 2361 libraries, 220 religious organizations, having 135 edifices, and 35 newspapers and periodicals, of which 4 were published daily. Six dailies, 36 weeklies and 1 semi-monthly were published in 1875.

Cities and Towns.—*Salem* (population, 1139), the State capital, is situated on the Willamette River, 50 miles south of Portland. Two daily and 2 weekly newspapers are published here. *Portland*, on the Willamette River, 12 miles above its entrance into the Columbia, is the chief city of Oregon. It contains the State Penitentiary. The other principal towns are Astoria (named after John Jacob Astor), Oregon City, Forest Grove, Corvallis, Eugene City, Harrisburg, Baker City, Roseburg and Jacksonville.

Population.—In 1850 the number of inhabitants was 13,294; in 1860, 52,465; and in 1870, 90,923, which is less than one person to a square mile; 11,600 were born in foreign lands and 79,323 in the United States, of whom 37,135 were natives of Oregon, 1710 of California, 4722 of Illinois, 3451 of Indiana, 3695 of Iowa, 2387 of Kentucky, 7061 of Missouri, 3092 of New York, 4031 of Ohio, 1930 of Pennsylvania, 996 of the Territories, etc.; 6225 natives of Oregon were residing elsewhere. Only Nevada had a smaller population. There are about 8000 tribal Indians, who occupy 7 reservations.

Government and Laws.—The legislature consists of 30 senators, elected for 4 years, and 60 representatives, elected for 2 years. Biennial sessions are held, during which the members are paid $3 per day. Executive officers are chosen for a term of 4 years. A salary of $1500 per annum is paid to the governor. The supreme court, which has only appellate jurisdiction, consists of 5 judges. Circuit courts are held at least twice a year in every county. Probate matters and inferior civil and criminal

cases are under the jurisdiction of a county court, the presiding judge of which is elected by the people of the county. Ten per cent. is the legal rate of interest.

History.—On the 7th day of May, 1792, Capt. Robert Gray, of Boston, entered the Columbia River. In 1805 Lewis and Clarke visited this region. In 1810 John Jacob Astor organized the Pacific Fur Company. A party sent out by this company reached the Columbia on the 24th of March, 1811, and founded Astoria. The Hudson's Bay Company claimed jurisdiction over the whole country. In 1846 the 49th parallel of latitude was made the boundary between British America and the United States. Immigrants began to enter Oregon by the overland route as early as 1833. From 3 to 5 months were consumed in the journey from the Missouri River. The passage around Cape Horn required six months. Congress passed a "donation law" in 1850, giving 320 acres of land to each actual settler and 320 acres more to the wife. Oregon, which had been organized as a Territory by an act passed Aug. 14, 1848, was admitted into the Union on the 4th day of February, 1859. Indian hostilities have been a source of very great trouble to the settlers. An account of the recent *Modoc war* is given elsewhere [see HISTORICAL SKETCH, page 149].

PENNSYLVANIA.

Situation and Extent.—Pennsylvania is bounded on the N. by Lake Erie and New York, E. by New Jersey, S. by Delaware, Maryland and West Virginia, and W. by West Virginia and Ohio. It is situated between latitudes 39° 43′ and 42° 15′ N. and longitudes 2° 18′ E. and 3° 36′ W. from Washington, or 74° 42′ and 80° 36′ W. from Greenwich. The State is 310 miles long, 175 miles in extreme breadth and contains an area of 46,000 square miles, or 29,440,000 acres. Its southern boundary is Mason and Dixon's line [see MARYLAND, page 171].

Physical Features.—*Surface.*—There are three natural divisions which are quite distinctly marked. (1.) The eastern slope extends from the Delaware River westward, from 75 to 80 miles to the Blue Mountains, exhibiting a surface slightly rolling and diversified. (2.) The mountain region of Central Pennsylvania includes a belt of country more than a hundred miles in width. Several chains of hills belonging to the Great Appalachian range extend in a parallel direction from north-east to south-west across the State. These are known by various local names, as Kittatinny, Broad Mountain, Tuscarora, Sideling Hill, Bald Eagle Ridge, etc. The Alleghanies constitute the water-shed between the Atlantic Ocean and the valley of the Ohio. Still farther west are the Laurel and Chestnut Ridges, sometimes attaining an altitude of 3000 feet. (3.) The western, or Ohio River, slope sinks away gradually from the mountain summits toward the great interior valley. *Rivers.*—The Delaware River, 320 miles

long, constitutes the eastern boundary of Pennsylvania. Ocean steamers of the largest size ascend as far as Philadelphia, and small steamboats can reach Trenton. Its principal tributaries are the Lehigh, 90 miles long and an important channel for the coal and lumber trade, which enters the Delaware at Easton; and the Schuylkill, taking its rise among the mountains of the coal region, which supplies Philadelphia with water and unites with the Delaware below that city after a course of 130 miles. The Susquehanna River rises in Otsego Lake, New York, flows across Pennsylvania and, passing into Maryland, discharges its waters into Chesapeake Bay. It is a broad stream, having a width of a mile and a quarter at Harrisburg, but is too shallow for navigation. The chief affluents of the Susquehanna are the West Branch, the Tioga and the "blue Juniata," famous among tourists for its beauty. Draining Western Pennsylvania are the two rivers which united form the Ohio—viz., the Alleghany and the Monongahela. The former rises in Potter county, sweeps into the State of New York, affording water communication as far as Olean, 240 miles above its mouth, and then, flowing southward, unites at Pittsburg with the Monongahela, which has its sources in the highlands of West Virginia. Lake Erie extends for 40 miles along the north-western boundary, thus affording to Pennsylvania a connection with the great system of lake navigation. *Forests.*—Large tracts of mountain land are covered with a dense growth of timber. Around the headwaters of the West Branch of the Susquehanna are primeval forests from which immense quantities of lumber are cut every year. Among the forest trees are the pine, cedar, spruce, hemlock, larch, ash, elm, linden, beech, mulberry, hornbeam, chestnut, aspen, persimmon, locust, sassafras, birch, gum, catalpa, sycamore, poplar, pawpaw, magnolia, maple, oak, hickory, walnut, etc. The bear, panther, wildcat, wolf, fox, raccoon, otter, opossum, deer and other wild animals are met with in the parts remote from civilization.

Soil and Climate.—The eastern counties have a fertile loam, which is brought to a high state of cultivation and produces large crops. In the counties along the Maryland line there is a strong and quick soil, resting upon a limestone formation, and well adapted for wheat and other grains. The mountain region is generally unproductive, the soil being cold and thin, but there are warm and deep alluvial lands in the valleys. West of the Alleghanies the soil has the fertility characteristic of the great valley of the Ohio. The isothermal lines crossing the State are: Spring, 45°–50°; summer, 67°–72°; autumn, 47°–55°; winter, 25°–30°; annual mean, 45°–55°. According to the report of the United States Signal Service Bureau, the average temperature for the three years ending Sept. 30, 1874, was 51.92° at Philadelphia and 51.33° at Pittsburg. The mean for the three summer months was 71°, and the maximum 97°, at the former city. During the month of August, 1875, the maximum temperature was 85°,

on the 6th, and the minimum 58°, on the 2d. The annual rainfall for two years was 40.17 inches at Pittsburg and 51.81 inches at Philadelphia.

Agricultural Productions.—Pennsylvania ranked first in the production of rye in 1873, being credited with 3,283,000 bushels, which was one-fifth of the whole production of the United States. It was first also in oats (31,229,000 bushels), and ranked next to New York in buckwheat, potatoes and hay. The value of the Indian corn, wheat, rye, oats, barley, buckwheat, potato, tobacco and hay crops was $115,965,700 (next to New York and Illinois). In 1874 the State contained 557,000 horses, 24,900 mules, 722,600 oxen and other cattle, 812,600 milch cows (next to New York), 1,034,400 hogs and 1,674,000 sheep. The last Federal census reported 17,994,200 acres in farms, of which 11,115,965 acres were improved; value of farms, implements and live-stock, $1,194,786,853; value of productions, $183,946,027; average size of farms, 103 acres. About 25½ per cent. of the population were employed in agriculture.

Manufactures.—The number of manufacturing establishments at the time of the last census was 37,200; hands employed, 319,487; value of materials, $421,197,673; value of products, $711,894,344. Pennsylvania ranked first among the States in the number of establishments, but was surpassed by New York in the number of hands employed and in the value of the products. Among the leading industries in value were iron, $122,605,296 (more than twice as much as in New York); textiles, $63,436,186 (next to Massachusetts); building materials, $55,630,364 (first); building, not marine, $38,348,344 (first); lumber, $35,262,590 (first); flouring-mill products, $31,124,017; molasses and sugar, refined, $26,731,016; men's clothing, $21,850,319; leather, tanned, $19,828,323; coal oil, rectified, $15,251,223; printing and publishing, $13,651,396 (next to New York); drugs and chemicals, $8,451,991 (first); paper, $6,511,446 (third); brass and brassware, $2,144,055 (next to Connecticut).

Mineral Resources and Mining.—Nearly one-half the value of all the mining products of the United States was credited to Pennsylvania by the Federal census. The number of mining establishments was 3086; hands employed, 81,215; capital, $84,660,276; wages, $38,815,276; value of products, $76,208,390. In her resources of coal and petroleum this State has no rival. Full and specific information concerning these sources of wealth and prosperity will be found in the article upon PHYSICAL GEOGRAPHY, pp. 180–189 [see also AMERICAN MANUFACTURES]. Coal-mining is attended with no inconsiderable peril. During a single year (1872) 223 persons were killed and 609 were maimed in the anthracite region; 109 wives were made widows and 381 children were made orphans. One life was lost for every 100,660 tons of coal mined. At Avondale, on the 6th day of December, 1869, 108 men were suffocated by the smoke from a burning coal-breaker at the mouth of the only

entrance to the mine. Not a single one was brought out alive. The increase of the coal-carrying trade has been enormous. In the year 1820 the whole amount sent out from the Lehigh region was 365 tons. In 1874, according to the *Report of the Auditor-General*, there were transported by railroad 29,201,029 tons of anthracite, 10,444,657 tons of bituminous and 4,036,080 tons of semi-anthracite and semi-bituminous, making a total of 43,681,786 tons; 3,703,143 tons of anthracite and 3,047,089 tons of bituminous coal were transported upon the canals, making the total amount for the year 50,532,018 tons. A part of the above amount, however, was transferred from one line to another, and so reckoned two or three times over. The actual production of anthracite coal for the year ending Dec. 31, 1874, was 21,667,386 tons, and of bituminous, 11,053,615 tons; total, 32,721,001 tons. The long "strike" in 1875 caused a five months' suspension of the anthracite trade. Up to September 11, the total production of all kinds for the coal year was 15,455,200 tons. Copper, zinc, plumbago and lead are also mined in considerable quantities. Marble is quarried in Chester and Montgomery counties; and limestone, sandstone, slate and other building-stones are abundant. Salt is manufactured extensively in Western Pennsylvania.

Commerce and Navigation.—Pennsylvania is favorably situated for commerce, being connected with the three great systems of water communication of the Atlantic Ocean, the Mississippi and the lakes, through the ports of Philadelphia, Pittsburg and Erie. During the year ending June 30, 1874, the value of imports was $26,676,712, and of exports, $33,169,060. In the foreign trade 511 American and 682 foreign vessels entered at Philadelphia, and 481 American and 741 foreign vessels cleared. At Erie the entries were 29 American and 41 foreign vessels, and the clearances 11 American and 37 foreign, making the total number entering and clearing in the foreign trade at the ports of the State 2533 vessels. Belonging to the customs districts there were 3586 vessels, of which 449 were steamers. *Ship-building.*—The construction of iron steamships has been brought to great perfection at the shipyards of John Roach, upon the Delaware. Twenty-four vessels, representing an aggregate of 47,000 tons, have been built since 1871, involving an annual expenditure of three millions of dollars; and Philadelphia has an American line of iron steamships of the largest class running to Liverpool. In all the shipyards of Pennsylvania there were built during the year ending June 30, 1874, 281 vessels, of which 57 were steamers.

Railroads and Canals.—From the comprehensive report of the auditor-general of Pennsylvania for the year 1874 we have gleaned the following facts. The whole number of railroad corporations whose lines are wholly or partly within the limits of the State is 146; capital stock authorized by law, $603,311,814; amount paid in, $482,931,393.50; total amount of funded and floating debt, $471,633,998.02; cost of railroads

and equipments, $744,701,826.99; length of main lines in Pennsylvania, 4392.91 miles; double track, 1806.28 miles; number of locomotives, 4100; passenger-cars, 1859; freight-cars, 53,193; coal-, stone- and tank-cars, 79,839; dépôts or stations, 3018; miles run by passenger-trains, 21,907,390; by freight-trains, 68,036,173; total number of miles run, 89,943,563; passengers carried, 42,297,158; gross receipts, $137,446,345.16 (a diminution of $10,561,687.67 from the previous year); expenses, $82,940,105.49. The gross amount of freight carried was 78,992,785 tons, among the leading items of which were 43,681,786 tons of coal, 1,653,226 of pig iron, 354,633 of railroad iron, 1,104,588 of other iron or castings, 4,160,295 of iron and other ores, 2,381,111 of lime, limestone, sandstone and slate, 6,027,360 of agricultural products, 4,434,775 of merchandise and manufactured articles, 1,827,967 of live-stock and 5,946,142 tons of lumber. By railroad accidents 540 persons were killed and 1142 injured. The statistics of *street railways* were: Length of roads, 311.51 miles; cost of roads and equipments, $9,695,843.57; passengers carried, 91,036,500; receipts, $5,828,690.27. Thirteen persons were killed and 26 maimed by street-cars during the year. There are nine *canals* in the State, having an aggregate length of 869¾ miles, and constructed at a cost, including equipments, of $36,816,728.14. The amount of the funded and floating debt was $46,239,173.12 in 1874; receipts, $2,289,824.55; expenses, $1,179,890.75; amount of freight transported, 7,925,883 tons. Ten *telegraph* companies have lines in Pennsylvania, extending for 6586 miles. The expenses in the State were $237,228.72, and the receipts $253,838.67; 586,275 messages were sent and 515,252 were received.

Public Institutions and Education.—There are two Penitentiaries, of which the Eastern, at Philadelphia, is conducted on "the separate system," and the Western, at Pittsburg, upon "the combined" system. About one thousand prisoners are confined in the two institutions. The House of Refuge, at Philadelphia, will accommodate 820 inmates, and the Reform School at Pittsburg provides for 228 pupils. Almshouses to the number of fifty-eight have been established, with real estate and buildings valued at $5,427,800, in which 13,207 paupers can be cared for. There are four State Hospitals for the Insane, located at Harrisburg, Dixmont, Danville and Warren. A department for the insane is connected with the Philadelphia Almshouse, and the Pennsylvania Hospital for the Insane (Kirkbride's) and the Friends' Asylum are in the same city. Up to the year 1873, 9843 males and 9143 females had been received into these various asylums for lunatics. The Pennsylvania Institutions for the Deaf and Dumb and for the Blind are schools rather than asylums. Pupils are received from New Jersey and Delaware at the expense of those States. By the new Constitution the legislature is required to provide for the maintenance and support of an efficient system of *public schools*,

and to appropriate at least one million dollars every year for that purpose. No public money shall be used for the support of any sectarian school. Women are eligible to any office in connection with the common-school system. The latest accessible educational statistics are: Number of schools, 16,305; pupils, 834,020; teachers, 19,089; total sum expended for school purposes under the direction of the school department, $8,812,969.25. Eight normal schools are in successful operation, with more than 100 instructors and 3000 pupils. Six universities and 33 colleges were credited to Pennsylvania by the last Federal census; but several of them do not possess full collegiate rank. The University of Pennsylvania has recently erected at West Philadelphia "one of the finest structures for educational purposes to be found in America." Girard College has under its care between 500 and 600 orphans. The Pennsylvania State College (Agricultural), in Centre county, possesses a property valued at $897,589. Tuition is free to all; twenty-five young ladies were in attendance last year. Sixteen institutions exclusively for women report an aggregate of 1267 pupils. For professional instruction there are 14 schools of theology, 2 of law, 8 of medicine (including dentistry and pharmacy) and 7 of science. The Federal census reported 14,849 libraries, 5984 religious organizations, having 5668 edifices, and 540 newspapers and periodicals, of which 55 were published daily. In 1875 the periodicals had increased to 707 (New York alone had more), of which 78 were published daily and 511 weekly.

Cities and Towns.—*Philadelphia*, the metropolis of Pennsylvania and the second city of the United States, in which more new buildings were erected during the past year than in both New York and Brooklyn combined, is described elsewhere [see CENTENNIAL CITY]. *Harrisburg*, which was made the State capital in 1812, is situated upon the east bank of the Susquehanna River, 95 miles west of Philadelphia. The State-House was completed in 1822. Five diverging railroads afford easy communication with all parts of the commonwealth. The city contains large founderies, machine-shops and rolling-mills. Water is supplied from the Susquehanna River by works constructed at a cost of two millions of dollars. There are 32 churches and 13 newspapers, of which 4 are published daily. The State library contains 30,000 volumes. John Harris, in honor of whom the place was named Harrisburg, settled in this neighborhood as early as 1726. The number of inhabitants in 1850 was 7834; in 1860, 13,405; in 1870, 23,104; in 1875, 26,000. *Pittsburg*, the second city of Pennsylvania in importance, is situated at the junction of the Alleghany and Monongahela Rivers, 354 miles west of Philadelphia. The principal public buildings are the Court-House, Custom-House, Western Penitentiary, House of Refuge, United States Arsenal and Roman Catholic Cathedral. For all kinds of heavy manufactures Pittsburg possesses the largest facilities. Iron ore in abundance is near at hand; coal is brought from the neighbor-

ing hills directly to the factory doors; the rivers and canals and seven railroads afford cheap and quick transportation. Even to catalogue the leading industries would require too much space. There are rolling-mills, furnaces, iron- and brass-founderies, machine- and boiler-shops, steel-works, flouring-mills, cotton-factories, chemical-works, tanneries, planing-mills, carriage-factories, glass-works, ropewalks, paper-mills, etc. Ship-building is a leading business; during the year 1874 158 vessels, 23 of them steamers, were built. Coal, iron, lumber and merchandise are shipped down the Ohio in immense quantities. Ten daily newspapers and 35 periodicals of all kinds are issued. Upon the opposite side of the river and connected with it by 4 bridges is *Alleghany City*, really a part of Pittsburg. The joint population of the two cities in 1870 was 149,256 (Pittsburg 86,076 and Alleghany 53,180); in 1875, 208,485 (Pittsburg 138,485 and Alleghany 70,000). *Scranton* has taken the third place among the cities of the State since 1870. In 1853 the number of inhabitants was 3000; in 1860, 9223; in 1870, 35,092 (an increase of 280.48 per cent. during the decade); and in 1875 it was estimated at 45,000. This rapid growth is explained by the position of Scranton in the centre of the most northern of the anthracite coal-basins and in the neighborhood of immense deposits of iron ore. The Delaware, Lackawanna and Western Railroad, the Delaware and Hudson Canal Company and the Pennsylvania Coal Company all ship coal, iron ore, pig- and railroad-iron largely from this point. There are 9 newspapers, 2 of which are issued daily. *Reading*, on the Schuylkill River, 58 miles above Philadelphia, is an important railroad and manufacturing centre. It has 11 periodicals, of which 3 are daily newspapers. The population was 33,930 in 1870, and is estimated at 40,000 in 1875. *Lancaster*, the county seat of the county of the same name, is the centre of an extensive coal and lumber trade. It has a fine Court-House and 14 newspapers, of which 4 are issued daily. The population was 20,233 in 1870, and 22,360 in 1875. *Erie* possesses one of the finest harbors upon the lakes. Belonging to the port are 79 vessels, with an aggregate tonnage of 25,507. Commodore Perry's flagship, the *Lawrence*, sunk in Erie harbor in 1813, was raised on the 13th of September, 1875. After being submerged for 62 years the bottom was found to be in a good state of preservation, and it was proposed to exhibit it at the Centennial. Seven newspapers are published in the town, and the estimated population is about 23,000 (19,646 in 1870). *Wilkes-Barré* [see page 182, note], on the North Branch of the Susquehanna, in the lovely valley of Wyoming, has been incorporated as a city since the last census, with extended limits, which contain an estimated population of 23,000. It has 4 newspapers, 1 of which is issued daily, and 3 street railways, and contains one of the finest hotels in the State; also an elegantly furnished "Music Hall," which seats 1200 people. The coal business of the "Wyoming Region" centres at this flourishing city.

Williamsport, on the West Branch of the Susquehanna, is one of the most important lumber dépôts in the United States. Its population increased from 4253 in 1860 to 16,030 in 1870, and is now estimated at 19,000. Among the other cities and towns of Pennsylvania, with their population by the Federal census, are Allentown (13,884), Pottsville (12,384), York (11,003), Easton (10,987), Norristown (10,753), Altoona (10,610), Chester (9485), Danville (8436), Lebanon (6727), Chambersburg (6308), Bethlehem (4512), Franklin (3908) and Gettysburg (3074). The last-named place contains a National Cemetery, dedicated on the 19th of November, 1863, wherein 3580 soldiers are buried. By the present law of Pennsylvania no place having less than 10,000 inhabitants can obtain a city charter.

Population.—Pennsylvania is surpassed by New York alone in the number of its inhabitants. During the period between 1860 and 1870 the absolute increase was 615,737, which was 113,722 more than the increase of New York. Fourteen of the sovereign States contained fewer people than were added to Pennsylvania during the decade. The population at each census has been as follows: 1790, 434,373; 1800, 602,365; 1810, 810,091; 1820, 1,047,507; 1830, 1,348,233; 1840, 1,724,033; 1850, 2,311,786; 1860, 2,906,215; 1870, 3,521,951. Of the last number 2,726,712 were natives of Pennsylvania; 249,930 had come in from other parts of the United States and 545,309 from foreign countries, thus adding to the commonwealth 795,239 persons, while 674,544 native Pennsylvanians were residing in other parts of the Union. These figures indicate that the total immigration had been greater than the emigration by 120,695; but the State had lost 424,614 in native population. There were 76.56 persons to a square mile.

Government and Laws.—The legislature consists of 50 senators, chosen for four years, and 200 representatives, chosen for two years. Biennial sessions are held, beginning on the first Tuesday of January. The governor holds office for four years, and is not eligible for re-election at the term next succeeding that for which he was first chosen. The supreme court consists of 7 judges, elected by the people for a term of 21 years and not eligible to re-election. In Philadelphia there are four separate and distinct courts of co-ordinate jurisdiction, composed of three judges each. Alleghany county has two such courts. Each county containing 40,000 inhabitants constitutes a separate judicial district. A separate orphans' court is established in every city and county having a population of 150,000. A registration of legal voters is made by the assessors, and every ballot is numbered in the order in which it is received. The State election is held on the Tuesday after the first Monday of November, instead of on the second Tuesday of October, as formerly—a provision which breaks the force of the old election proverb, "As Pennsylvania goes, so goes the Union." Any candidate for office guilty of fraud or bribery shall

be for ever disqualified from holding any office of trust or profit in the commonwealth. Any association or corporation organized for the purpose may construct and operate a railroad or canal between any two points in the State. The property of railroad companies shall be for ever subject to taxation, and railroad companies shall not grant free passes to any person not an employé of the company. The above provisions are in accordance with the new State Constitution, which made many sweeping changes in the old order of administration. Pennsylvania is entitled to 27 representatives in Congress. The public debt on the 30th of November, 1874, was $24,568,836.

History.—William Penn received from the English Crown a grant of "all that tract of land bounded on the east by the river Delaware, extending westward five degrees, and north and south between the 40th and 42d parallels, except an area around New Castle (Delaware) circumscribed by a radius of twelve miles." In October, 1682, Penn, accompanied by 2000 settlers, arrived at New Castle, and in 1683 Philadelphia was chosen as the site for the new colony. It was declared that "none acknowledging one God and living uprightly shall be molested for his opinion or practice, or compelled to maintain or frequent any ministry whatsoever." Very amicable relations were established with the Indians, and Penn's people were exempt from the horrors of savage warfare which were inflicted upon almost every other colony. The part which Pennsylvania took in the American Revolution has been described elsewhere [see HISTORICAL SKETCH]. A convention to draft an amended Constitution for the State was in session at Harrisburg and Philadelphia from Nov. 12, 1872, to Nov. 3, 1873. The expenses of the convention were $410,723.80. On the 16th of December, 1873, the amended Constitution was approved by the people by a vote of 253,744 against 108,594. Pennsylvania is called "the Keystone State," not, as is supposed by many, because it occupied the central position among the thirteen original colonies, but because the casting vote of her delegate secured the unanimous adoption of the Declaration of Independence.

RHODE ISLAND.

Situation and Extent.—The State of Rhode Island (the smallest in the Union) is bounded on the N. and E. by Massachusetts, S. by the Atlantic Ocean and W. by Connecticut. It is situated between latitudes 41° 8′ and 42° 3′ N. and longitudes 5° 7′ and 5° 52′ E. from Washington, or 71° 8′ and 71° 53′ W. from Greenwich. The greatest length is 48 miles, the breadth 39 miles and the area 1306 square miles, or 835,840 acres.

Physical Features.—*Surface.*—Near the sea-coast the ground is level; in the interior it is slightly rolling and hilly. Mount Hope, in the east, 300 feet in height, Hopkins Hill, near the centre, and Woonsocket Hills, in the north, are the most elevated lands in the State. *Rivers.*—

The rivers are mostly too small for navigation, but have a sufficient descent to furnish abundant water-power. Pawtucket River is a continuation of the Blackstone of Massachusetts. It takes the name of the Seekonk below the falls at Pawtucket, which are 40 feet high. The Providence River discharges its waters into the northern arm of Narraganset Bay. Large vessels ascend it as far as the city of Providence. The Pawcatuck drains the south-western part of the State, and marks the boundary between Rhode Island and Connecticut. *Bays and Islands.*—Narraganset Bay is 30 miles long and from 3 to 12 miles wide. Its north-eastern, northern and western extensions are called respectively Mount Hope, Providence and Greenwich Bays. Rhode Island, 15 miles in length and ¾ of a mile in width, divides Narraganset Bay into two unequal parts. For its beauty and salubrity this island has been called "the Eden of America." Conanicut and Prudence are the other principal islands of the bay. Twelve miles from the coast is Block Island, 7 miles long and 4 miles wide and containing a large salt water pond. *Forests.*—There are no large forests in the State. The trees are of the same varieties as in Massachusetts and Connecticut, with the chestnut, walnut and oak predominating.

Soil and Climate.—The most common soil is a loam, having a large admixture of sand and gravel and only moderately fertile. It is better adapted for grazing than tillage, but by careful cultivation is made to produce large crops. Both the winter and summer climate are moderated by proximity to the sea. Careful observations upon meteorology were made by Professor Caswell, of Brown University, at Providence, during a period of 29 years. The mean of February (the coldest month) for the whole period was 26.73°, and the mean of July (the warmest month), 70.69°. The highest annual mean was 49.86°, and the lowest, 44.62°; mean for the 29 years, 48.19°. Fifteen degrees below zero was the lowest temperature recorded, and 94 degrees above the highest, giving a range of 109 degrees. The largest annual rainfall was 53.27 inches, and the smallest, 30.96 inches; mean for the whole period, 40.38 inches. The isothermal lines crossing Rhode Island are: Spring, 47°; summer, 68°; autumn, 50°–52°; winter, 25°–30°; mean, 47°–50°.

Agricultural Productions.—According to the last Federal census, the number of acres of land in farms was 502,308, of which 289,030 were improved; number of farms, 5344; average size, 94 acres; value of farms, farm implements and live-stock, $25,496,346; of farm productions, $4,761,163. In 1873, 103,903 acres were devoted to Indian corn, rye, oats, barley, potatoes and hay (no wheat, tobacco or buckwheat was reported), and the total value of these crops was $2,970,765. At the beginning of 1874 the State contained 14,700 horses, 16,000 oxen and other cattle, 20,400 milch cows, 17,100 hogs and 25,600 sheep.

Manufactures.—The first cotton-mill in the United States was

erected in Rhode Island [see AMERICAN MANUFACTURES]. The census of 1870 returned 1850 manufacturing establishments, which employed 49,417 hands and produced articles to the value of $111,418,354. The leading industries in value were: Cotton goods, $22,139,203 (next to Massachusetts); printing cotton and woollen goods, $17,842,480; bleaching and dyeing, $15,138,723; woollen goods, $12,558,117; machinery, cotton and woollen, $4,316,376; jewelry, $3,043,846; worsted goods, $2,835,950; screws, $1,882,318; India-rubber and elastic goods, $1,804,868. In 1874 the State contained 115 cotton-mills, having 24,706 looms and 1,336,842 spindles, which consumed 125,317 bales of cotton annually.

Minerals and Mining.—Anthracite coal exists in veins of considerable thickness, but the mining has not proved profitable. Serpentine is abundant. Marble, freestone and limestone are quarried. The product of mines and quarries in 1870 was $59,000.

Commerce and Navigation.—There are three customs districts —viz., Providence, Newport and Bristol—at which, during the year ending June 30, 1874, 284 vessels were enrolled, registered and licensed. In the foreign trade 41 American and 120 foreign vessels entered and 27 American and 105 foreign vessels cleared. The value of imports was $379,621, and the value of exports, domestic and foreign, $135,049. One vessel was built. Cod- and mackerel-fishing employed 98 vessels. Bluefish, scup, tautogs, etc., are caught in large quantities.

Railroads.—From Providence railroads radiate toward Bristol, New London, Hartford, Springfield, Worcester and Boston. The number of miles of railroad in 1873 was 159; total capital account, $5,168,783; cost per mile, $46,989; total receipts, $1,115,672; receipts per mile, $7017; receipts to an inhabitant, $4.75; net earnings, $424,371.

Public Institutions and Education.—The State Prison is located at Providence. A new building is being erected. The deaf and dumb, blind, and idiotic are supported at the expense of the State in the institutions of Massachusetts and Connecticut. The Butler Hospital for the Insane is partially endowed by the State. A Board of State Charities and Corrections was established in 1869, and a farm was purchased at Cranston, upon which a Workhouse and House of Correction, Almshouse and Asylum for the Insane are in successful operation. The expense of these institutions for the year 1875 is estimated at $112,000. A Reform School for boys was opened at Providence in 1850. During the year 1874 the number of children in the State between the ages of 5 and 15 years was 43,800; number attending school, 39,401; schools, 732; teachers, 805; expenditures for school purposes, $690,852. Brown University is the only college. An agricultural and scientific department has been added to it. The boarding-school of Friends at Providence has a property valued at $850,000. The State contained in 1870, 759 libraries, 295 religious organizations, with 283

church edifices, and 19 newspapers and periodicals. In 1875 there were 27 newspapers, 6 of which were published daily.

Cities and Towns.—Rhode Island contains 5 counties, in which are 2 cities and 34 towns. *Providence*, the second city of New England in wealth and population, is situated upon the Providence River, at the head of Narraganset Bay. The river divides the city into two nearly equal parts, which are connected by several bridges. Vessels of 900 tons burden can come up to the wharves, and an extensive coasting trade is carried on. Six railroads centre at Providence. Among the principal buildings are the State-House, Custom-House, Butler Hospital for the Insane, Dexter Asylum for the Poor, State-Prison, Reform School, Arcade, Athenæum and Brown University. The manufactures are very extensive and various. Jewelry, cotton and woollen goods, screws, hardware, machinery, locomotives and steam-engines, stoves, etc., are among the articles most largely produced. Ten periodicals are published, of which five are issued daily. The number of inhabitants in 1870 was 68,004. North Providence, with a population of 20,495, was annexed in 1874, making the aggregate population, by the figures of the Federal census, 88,499. It is estimated that the consolidated city contained in 1875 not less than 100,000 people. *Newport*, upon the south-west shore of the island of Rhode Island, has "one of the finest harbors of the world"—deep, easily accessible and sheltered from the winds. In former times there was an extensive trade with the West Indies, but "Oldport wharves" are now going to decay. Many New Yorkers, Philadelphians and Bostonians make Newport their summer-home, and some of its modest "cottages" cost from a hundred thousand to half a million of dollars. Bellevue Avenue affords a fine drive for the distance of two miles. Among the objects of interest is the Old Stone Mill, "the only thing on the Atlantic Shore," says Higginson, "which has had time to forget its birthday." The Redwood Library contains 20,000 volumes, and the People's Library 15,000. One daily and two weekly newspapers are published. Population, 12,521. *Woonsocket* (population 11,527) includes a cluster of villages upon the Blackstone River, near the Massachusetts line. It contains large cotton- and woollen-mills and machine-shops. There are two weekly newspapers, one of which is published in the French language, and one daily. *Warwick* (10,453) is a very busy manufacturing town. The other leading towns of the State are Lincoln (7889), Pawtucket (6619), Bristol (5302), Cranston (4822), Westerly (4709), South Kingstown (4493) and Coventry (4349).

Population.—In 1730 the number of inhabitants was 18,000; in 1790, 68,825; in 1800, 69,122; in 1810, 76,931; in 1820, 83,015; in 1830, 97,199; in 1840, 108,830; in 1850, 147,545; in 1860, 174,620; in 1870, 217,353. Of the latter number, 55,396 were born in foreign countries, 125,269 in Rhode Island and 36,688 in the other States and Territories,

while 45,371 natives of Rhode Island were residing in other parts of the Union. The number of inhabitants to a square mile (166.43) is greater than in any other State except Massachusetts. About a hundred of the once powerful tribe of Narraganset Indians are still remaining.

Government and Laws.—The legislature consists of a senate of 34 members (one from each town) and a house of representatives of 72 members (one for every 2794 inhabitants). The supreme court consists of a chief-justice (salary, $3500) and 3 associate justices. The governor and other executive officers are elected annually. Prisoners, when released from confinement, are paid a portion of the money earned by their labor during confinement. A stringent prohibitory liquor law and a "constabulatory act" for ensuring its enforcement were passed in 1874. On the 1st of December, 1874, the bonded debt was $2,563,500. The amount of deposits in savings' banks was $48,771,502.

History.—It is supposed that the Northmen visited this region as early as the tenth century. Roger Williams has linked his name indissolubly with the history of Rhode Island. Driven from Massachusetts on account of his religious opinions, in 1636, he passed down the Pawtucket River and erected a dwelling, calling the place of his new home Providence, as a memorial of "God's merciful providence to him in his distress." "Liberty of conscience" was the fundamental law of his colony. In 1663 a charter was obtained from King Charles II. for "the Colony of Rhode Island and Providence Plantations." A long-protracted and bloody Indian war was terminated by the death of King Philip, who was killed near Mount Hope in August, 1676. A British army occupied portions of the State in 1778–9. Rhode Island ratified the Federal Constitution after all the other States May 29, 1790. The charter of King Charles granted in 1663 remained the basis of government until 1841. By it suffrage was limited to the holders of a certain amount of real estate and to their eldest sons. Not more than one-third of the male population above the age of twenty-one possessed the franchise. A new Constitution was framed in 1841, and the "suffrage party," under the leadership of Thomas Dorr, secured its adoption. The "charter party" claimed that many of the votes cast were fraudulent, and that the whole proceeding was seditious. Two State governments were organized. Civil war was threatened; but the Dorr, or suffrage, party dispersed without resistance when attacked by the State militia [see HISTORICAL SKETCH, page 130]. A Constitution extending the suffrage was adopted in May, 1843.

SOUTH CAROLINA.

Situation and Extent.—The State of South Carolina is bounded on the N. and N. E. by North Carolina, S. E. by the Atlantic Ocean and S. W. by Georgia. It is situated between latitudes 32° and 35° 10′ N.

and longitudes 1° 35′ and 6° 30′ W. from Washington, or 78° 35′ and 83° 30′ W. from Greenwich. The shape is that of an irregular triangle 240 miles long from east to west, 210 miles wide from north to south and containing an area of 34,000 square miles, or 21,760,000 acres.

Physical Features.—*Surface.*—Along the coast the land is low and marshy. Farther inland are the sandy plains and rolling sand hills of the "middle country," extending for a hundred miles. Beyond this region is a rolling and picturesque country, rising by a gradual slope toward the Blue Ridge Mountains. Table Mountain has an elevation of 4000 feet. King's Mountain, upon the North Carolina border, is a conspicuous landmark. *Rivers and Bays.*—The principal rivers of the State take their rise in the Blue Ridge Mountains of North Carolina and flow in a south-easterly direction toward the ocean. Beginning on the north, the first important stream is the Great Pedee, called the Yadkin in North Carolina, which empties into Winyaw Bay. Steamboats ascend it for 150 miles. The Santee River, formed by the junction of the Wateree and the Congaree near the centre of the State, discharges its water through two mouths, called the North and South Santee. Both the main branches are navigable almost to the boundaries of North Carolina for small boats. Ashley and Cooper Rivers find their outlet through Charleston Bay. The Edisto is a considerable stream, divided by a large island near its mouth into two parts, called the North and South Edisto. Savannah River forms the boundary between South Carolina and Georgia. It is 450 miles long and navigable for large steamers to Augusta, 230 miles. Numerous bays indent the coast, which is 200 miles long in a direct line. Winyaw Bay, 14 miles long and 2 miles wide, affords a good harbor. St. Helena's Sound, from 3 to 5 miles broad, extends inland for 10 miles. Beaufort harbor will admit vessels drawing 24 feet of water. Charleston harbor is spacious, but the entrance is obstructed by bars. Stretching along the coast and cut off from the main land by narrow channels are many islands. *Forests.*—The islands, in their primitive state, were covered with a growth of trees, underbrush and rank weeds so thick as to be almost impenetrable. Extending along the adjacent shores were dense forests of live-oak, pitch pine, palmetto, yucca, laurel, hickory, etc. Six millions of acres are included in the pine woods. Orange trees flourish in the South. The mountains of the north-west are covered with a hard-wood growth, comprising most of the trees which are common to North Carolina and Virginia.

Soil and Climate.—The famous sea-island cotton, "which has no superior in the world," is grown to perfection upon the deep, rich soil of the islands. It is estimated that a million acres of the most productive lands can be made by draining the swamps, which have an inexhaustible fertility. Rice-fields occupy many of the tide-swamps. Upon the oak and hickory openings large crops of cotton, corn, potatoes and other vegetables

are produced. The pine lands are less fertile, but well repay cultivation. Nearly half the soil of the State is of an alluvial formation, having clay as its substratum. The lowlands and swamps are malarious, but most of the State is healthful. Sea-breezes relieve the coast from excessive heats, and the mountains of the north-west afford cool summer-breezes. The isothermal lines crossing the State are: Spring, 60°–65°; summer, 75°–82°; Autumn, 60°–65°; winter, 40°–50°; annual mean, 60°–67°. During the year ending Sept. 30, 1874, the mean temperature at Charleston was 65.6°. Upon 4 days the mercury fell below the freezing-point, and upon 21 days rose above 90 degrees. The minimum was 23° and the maximum 96°. The rainfall was 67.70 inches, which was greater than the fall at any other of the Signal Service stations, with the exception of Mount Washington (82.97 inches) and New Orleans (67.98 inches).

Agricultural Productions.—The Federal census of 1870 reported 12,105,280 acres in farms, of which 3,010,539 acres were improved; average size of farms, 233 acres; value of farms and farm implements, $47,091,709 (a decrease of $98,712,456 from the valuation of 1860, which was $145,804,165); value of productions, including betterments, etc., $41,-909,402. In 1873 the Indian corn, wheat, rye, oats, barley, potato, tobacco and hay crops occupied 1,140,425 acres, and were valued at $11,167,-150. Cotton was produced to the amount of 224,500 bales in 1870, giving to South Carolina the sixth rank in this staple. In rice she distanced all the rest, producing 32,304,825 pounds, which was more than three-sevenths of the whole crop of the United States. In 1874 there were in the State 56,400 horses, 45,200 mules, 184,900 oxen and other cattle, 157,800 milch cows, 322,600 hogs and 153,400 sheep. Of those whose occupations were returned 78.48 per cent. were engaged in agriculture.

Manufactures.—The number of manufacturing establishments reported was 1584; hands employed, 8141; value of materials, $5,855,736; value of products, $9,858,981. The value of the leading industries was as follows: Cotton goods, $1,529,937; lumber, $1,032,194; flouring-mill products, $825,465; tar and turpentine, $774,077; fertilizers, $425,000; machinery, $286,550; printing and publishing, $257,155.

Mineral Resources.—The gold belt of the Atlantic slope crosses the western part of South Carolina. As early as 1827 gold was gathered in small quantities, the amount returned for that year being $3500, and the average annual production afterward for 40 years was more than $30,000. Iron, copper, lead, manganese and bismuth are found. Porcelain clay and marble, granite, limestone and other building-stones are abundant.

Commerce and Navigation.—There are three customs districts—viz., Charleston, Beaufort and Georgetown—at which 203 vessels, 30 of them steamers, belong. During the year ending June 30, 1874, the value of imports was $864,758; value of exports, $18,698,527. Cotton is

the principal article of commerce; 249,478 bales were exported, valued at $17,567,175. Of naval stores (rosin, turpentiue, tar and pitch) the exports were 96,933 barrels, valued at $334,220. In the foreign trade 288 vessels entered aud 330 cleared. Twenty-four vessels, six of which were steamers, were built during the year.

Railroads.—There were 204 miles of railroad in 1844 and 1320 miles in 1873; total capital account at the latter date, $30,307,216; cost per mile, $29,597; total receipts, $3,560,027; receipts per mile, $3477; receipts to an inhabitant, $4.98; net earuings, $1,376,318.

Public Institutions and Education.—A new Penitentiary, having 500 cells for male and 48 for female convicts, was completed iu 1868. It is located at Columbia, where is also the State Asylum for Lunatics. Propositions have been made to remove to the same city the Institution for the Deaf and Dumb and the Blind, which is now at Cedar Spriugs. The new Constitution requires the General Assembly to provide for a uniform system of free public schools, open to all the children and youth of the State, without regard to race or color. In 1874 the number of school districts was 463; school-houses erected during the year, 109; pupils enrolled in the public schools, 85,594; teachers, 2357; white scholars in the State, 84,975; colored scholars, 145,127; receipts for school purposes, $449,969. The higher iustitutions for education are: Claflin Uuiversity, College of Charlestou, Furman University, Mount Zion College, Newberry College, Wofford College and the University of South Carolina. Connected with the last named are schools of law and medicine. The South Carolina Agricultural College, having a property valued at $200,800, is a part of Claflin University. There are two schools of theology, one under Baptist and the other under Presbyterian control. The number of libraries in 1870 was 1663; church organizations, 1457; church edifices, 1308; newspapers and periodicals, 55. The newspapers had iucreased to 84 in 1875, of which 7 were published daily.

Cities and Towns.—*Columbia*, the capital, is situated on the Congaree River, very near the centre of the State. The Capitol is a granite edifice, erected at a cost of $4,000,000. Among the principal buildings are the City Hall and Opera House, United States Building, Market-House, Penitentiary, Lunatic Asylum, Ursuline Convent and the Governor's house. The State Library contains 3500 volumes. Two theological seminaries and the University of South Carolina are located here. There are large machine-shops, car-shops and other irou-works. Ten newspapers are issued, two of them daily. Four railroads centre at Columbia. The number of inhabitants in 1870 was 9298, of whom 5295 were colored. *Charleston*, the chief city of South Carolina, is built upon a peninsula between the Ashley and Cooper Rivers. The harbor is defended by four forts—viz., Moultrie, Sumter, Ripley and Castle Pinckney. The ship-

channel has sixteen feet of water at low tide. Regular lines of steamers run to Savannah, Baltimore, Philadelphia, New York and Boston. Among the most noteworthy buildings are the new Custom-House, City Hall, Academy of Music and St. Michael's Church, erected in 1752. Manufacturing is carried on extensively. There were, at the last census, 224 factories, employing 2579 hands; value of products, $2,431,733. The principal articles were fertilizers, machinery, flour, tar, turpentine, etc. The rice-mills are the most extensive in the country. Three railroads have their terminus at Charleston. The city has about 40 churches and 12 periodicals, 4 of which are issued daily. Population in 1870, 48,956, and estimated at 55,000 in 1875. *Beaufort* (population, 5511), on Port Royal Island, 16 miles from the ocean, has a fine harbor and is a popular place of summer resort. The other leading towns are Georgetown (3520), Pickensville (3164), Greenville (3135), which is the seat of several educational institutions, Baton Rouge (3098) and Abbeville (3034).

Population.—The number of inhabitants in 1790 was 249,073 (slaves, 107,094); 1800, 345,591 (slaves, 146,151); 1810, 415,115 (slaves, 196,365); 1820, 502,741 (slaves, 258,475); 1830, 581,185 (slaves, 315,401); 1840, 594,398 (slaves, 327,038); 1850, 668,507 (slaves, 384,984); 1860, 703,708 (slaves, 402,406); 1870, 705,606 (free colored, 415,814). Of the total population 8074 were born in foreign lands, and 697,532 in the United States, 678,708 of whom were natives of South Carolina and 18,824 of other parts of the Union; 246,066 native South Carolinians were residing in other States and Territories. The density of population was 20.75 to a square mile.

Government and Laws.—The legislature consists of 33 senators, elected for 4 years, and 124 representatives, elected for 2 years. The governor (salary, $3500 and a furnished house) and lieutenant-governor are chosen for a term of two years. Three judges, appointed by the General Assembly for 6 years each, constitute the supreme court. The chief-justice is paid a salary of $4500, and the others $3500 each. There are two circuit courts, of which the court of common pleas has civil jurisdiction and the court of general sessions has criminal jurisdiction only. A court of probate is established in each county. Ministers of the gospel are ineligible to the legislature or to the office of governor or lieutenant-governor. The State debt on the 31st of October, 1874, was $17,017,651.

History.—In 1562 a party of French Huguenots built a fort upon an island in Port Royal Harbor and called it Carolina, in honor of Charles IX. of France. This colony was soon dispersed. The first permanent settlement was made by a company of English colonists, at Port Royal, in 1670. In 1685 a large company of French Huguenots established themselves in the State. The model Constitution prepared by John Locke was for a time the basis of government [see HISTORICAL SKETCH, page 95].

South Carolina bore an honorable part in the struggle for independence. The battles of Camden, King's Mountain, Cowpens, Eutaw Springs and others of lesser note were fought upon her soil. An incident from the life of Mrs. Rebecca Motte illustrates the spirit of patriotism which actuated the breasts of not a few. A British army occupied the mansion of Mrs. Motte. It was necessary that they should be dislodged, and the lady herself furnished Major-General Lee with the bow and arrows by which he threw combustibles upon the roof and drove out the enemy at the expense of burning her dwelling. The part which this State took in the beginning of the civil war is described elsewhere [see HISTORICAL SKETCH, page 137]. A new Constitution was ratified in 1868.

TENNESSEE.

Situation and Extent.—Tennessee is bounded on the N. by Kentucky and Virginia, S. E. by North Carolina, S. by Georgia, Alabama and Mississippi and W. by Arkansas and Missouri. It is situated between latitudes 35° and 36° 35′ and longitudes 4° 40′ and 13° 28′ W. from Washington, or 81° 40′ and 90° 28′ W. from Greenwich. The extreme length from east to west is 430 miles, the breadth from north to south 110 miles and the area 45,600 square miles, or 29,384,000 acres.

Physical Features.—*Surface.*—The State is divided by its geographical configuration into three sections, called respectively Eastern, Middle and Western Tennessee. Eastern Tennessee embraces the mountainous district extending from the Alleghanies, upon the North Carolina border, westward to the Cumberland Mountains. Between these ranges is the valley of the Tennessee, a region of very great beauty and fertility. Middle Tennessee extends from the west flank of the Cumberland Mountains to the Tennessee River, near the 88th parallel of longitude. This division, which includes 35 counties, has no very high mountains or hills, but is rolling and picturesque. Western Tennessee, comprising the district between the Tennessee and the Mississippi Rivers, is more nearly level, and contains large tracts of alluvial land. Numerous caves exist in Eastern Tennessee, some of which have been explored for a distance of several miles below the surface. *Rivers.*—The Mississippi River constitutes the western boundary for 160 miles. The Tennessee River, after its junction with the Clinch and the Holston, both rising in the mountains of Virginia, flows toward the south-west and makes a detour into Northern Alabama; then, re-entering Tennessee, it runs almost due north across the State, affording steamboat navigation for 200 miles. Its principal tributaries are the Elk, Duck, Sequatchie and Hiawassee. Discharging their waters into the Mississippi are the Wolf, Hatchie, Obion and Reelfoot Rivers, navigable for a short distance only. Every part of the State is abundantly watered. *Forests.*—Heavy growths of timber cover the mountains of the eastern

section. Among the most common trees are the sugar-maple, black-walnut, red cedar, poplar, juniper, hickory, oak, beech, locust, cypress, sycamore, cottonwood, hacmatac and pawpaw. Pine is very abundant.

Soil and Climate.—The eastern section rests upon a limestone formation, and the soil is calcareous. Very fertile lands are found in the valleys, and the mountain slopes admit of cultivation to some extent. As a grazing country this has great advantages. Middle Tennessee is a fine agricultural region, showing quite a variety of loamy soils, in which sometimes clay and sometimes sand predominates. The western section has a deep, rich, dark mould, producing very large crops of cotton, tobacco and all the leading grains and vegetables. Canebrakes grow to an enormous size along the rivers. The isothermal lines crossing the State are: Spring, 55°–60°; summer, 72°–77°; autumn, 55°–60°; winter, 35°–40°; yearly mean, 60°. During the year ending Sept. 30, 1874, the mean temperature at Knoxville was 57.5°, and the maximum 99°. At Nashville the mean was 61.3°, and the maximum 106°; upon 63 days during June, July and August the mercury rose to 90°, and upon 7 days it reached 100°. At Memphis the thermometer indicated a temperature of 100° upon 4 days, and one day rose to 101.5°; the mean was 61.6 degrees. The rainfall at Memphis was 49.39 inches, at Nashville 59.76 inches and at Knoxville 63.50 inches.

Agricultural Productions.—The last Federal census reported 19,581,214 acres in farms, of which 6,843,278 acres were improved; average size of farms, 166 acres; value of farms, farm implements and live-stock, $282,027,308; value of productions, $86,472,847. The production of cotton was 181,842 bales; of rice, 3399 pounds; of cane-sugar, 1410 hogsheads; of cane-molasses, 3629 gallons. In 1873, 3,385,984 acres were devoted to Indian corn, wheat, rye, oats, barley, buckwheat, potatoes, tobacco and hay, and the value of these crops was $41,372,410. In tobacco, Tennessee ranked next to Kentucky, Virginia and Ohio; seven States produced more Indian corn. In 1874 there were 302,900 horses, 103,200 mules (more than in any other State), 355,100 oxen and other cattle, 247,700 milch cows, 1,420,900 hogs and 350,000 sheep. Engaged in all classes of occupations there were 367,987 persons, of whom 267,020 (72.56 per cent.) were employed in agriculture.

Manufactures.—The number of manufacturing establishments was 5317; hands employed, 19,412; value of materials, $19,657,027; value of products, $34,362,636. The leading industries in value were: Flouring-mill products, $5,666,698; lumber, sawed, $2,876,946; iron, pig, $1,147,707; printing and publishing, $1,022,600; cotton goods, $941,542; carriages and wagons, $938,647; leather, curried, $922,641; leather, tanned, $921,497; clothing, $597,607; lumber, planed, $525,750; copper, milled and smelted, $510,677; wool-carding and cloth-dressing, $491,847. The

numerous streams furnish abundant water-power for manufacturing purposes, which has been improved only to a small extent.

Mineral Resources.—Iron exists in three extensive belts, which stretch over 28 counties. Some of the ore yields from 40 to 50 per cent. of tough gray iron. Coal measures extend over 5100 square miles. Gold has been discovered in small quantities. Copper, lead, gypsum and marble are also found. There are sulphur and mineral springs in Eastern Tennessee. The value of the product of 22 mines, employing 1239 hands, in 1870, was $776,292.

Commerce and Navigation.—Memphis and Nashville are United States ports of delivery, but the foreign commerce is transacted principally through New Orleans, Mobile and Charleston. During the year ending June 30, 1874, eight vessels, all steamboats, were built. Sixty-eight vessels, having a tonnage of 10,916, belong to the ports of Tennessee.

Railroads.—In 1848 there were 28 miles of railroad open for travel. A very extensive system of internal communication has been devised and partly completed by which Nashville, Memphis and Knoxville have railroad connections with every quarter of the State and of the Union. The statistics in 1873 were: Miles of railroad, 1620; cost per mile, $29,372; total capital account, $24,966,565; receipts, $4,451,517; receipts per mile, $5237; receipts to an inhabitant, $3:39; net earnings, $1,138,593.

Public Institutions and Education.—The Penitentiary at Nashville, which is conducted on the "silent system," contained 963 prisoners at the beginning of 1875. The State Hospital for the Insane and the Institution for the Blind are also at Nashville. Bills for the establishment of two additional hospitals for the insane have passed the legislature, and Knoxville has been selected as the site of the institution for Eastern Tennessee. A law providing for a general system of public schools was passed in March, 1873. These schools are declared free to all between the ages of six and eighteen years, provided that white and colored children shall be taught in separate schools. The permanent fund is $2,512,500, the interest of which is distributed semi-annually among the counties of the State, according to school population. In 1874 the number of children was 418,185; schools organized, 4059; teachers licensed, 4680. Sixteen universities and colleges were reported, of which the University of Nashville, founded in 1785, is the oldest. Fisk University has college-grounds containing 25 acres, purchased with the funds obtained by the "Jubilee Singers." Vanderbilt University possesses an endowment of $500,000, the gift of Commodore Vanderbilt. For professional instruction there are 2 schools of theology, 1 of law, 3 of medicine and 1 of science. The last-named school is a department of Tennessee Agricultural College, at Knoxville, which has a property valued at $397,190. There were enumerated, in 1870, 3505 libraries, 987 religious organizations, having 918 edifices, and

91 newspapers; in 1875, 141 newspapers and periodicals were published, 9 of them daily.

Population.—The number of inhabitants in 1790 was 35,791 (slaves, 3417); 1800, 105,602 (slaves, 13,584); 1810, 261,727 (slaves, 44,535); 1820, 422,813 (slaves, 80,107); 1830, 681,904 (slaves, 141,603); 1840, 829,210 (slaves, 183,059); 1850, 1,002,717 (slaves, 239,459); 1860, 1,109,847 (slaves, 275,784); 1870, 1,258,520 (free colored, 323,331). The foreign born numbered 19,316 and the native born, 1,239,204, of whom 1,029,134 had their birthplace in Tennessee and 210,070 in other parts of the Union; 402,215 native Tennesseeans were residing in other States and Territories. The density of population was 27.60 to a square mile.

Cities and Towns.—*Nashville*, the State capital, is situated on the Cumberland River, 200 miles from its confluence with the Ohio. The State-House, on Capitol Hill, which was erected at a cost of $1,000,000, has a tower 206 feet in height. Other fine edifices are the Court-House, Penitentiary, Market-House and the Asylums for the Blind and for the Insane. Nashville takes a high position as an educational centre, since it is the seat of four colleges—viz., Central Tennessee College, Fisk University, University of Nashville and Vanderbilt University. Connected with these also are various professional schools. Nashville is at the intersection of four railroads. The wholesale trade amounts to more than $50,000,000 a year. Flour-, saw- and planing-mills, tanneries, founderies, machine-shops, paper-mills, etc., furnish employment to a large number of hands. Thirty-five churches represent all the leading denominations. The population of the city was 25,866 in 1870, and is estimated at 40,000 in 1875. "The Hermitage" of Andrew Jackson is about 12 miles distant from Nashville. *Memphis*, the largest city of Tennessee, is built upon the east bank of the Mississippi. Regular lines of steamers ply to the leading ports upon the river, and the wholesale trade is estimated at between 60 and 70 millions of dollars per year. The city contains very large mills for the manufacture of cotton-seed oil. There are 6 railroads, 5 daily and 9 weekly newspapers and about 50 churches. The population was 40,222 in 1870, and was estimated at from 60,000 to 65,000 in 1875. *Knoxville* carries on an extensive wholesale trade with the towns of Eastern Tennessee, with which it is connected by railroads radiating in four directions. It has 2 daily and 4 weekly newspapers. Population, 8682 in 1870, and now estimated at 11,000. *Chattanooga*, upon the Tennessee River, near the Georgia line, is an important shipping-point. It is not far from the base of Lookout Mountain and at the junction of 4 railroads. Three daily newspapers are published. Population, 6093 in 1870, and about 10,000 in 1875. The other leading towns are Murfreesboro' (3502), Clarksville (3200), Pulaski (3041), Columbia (2550), Gallatin (2123), Fayetteville (1206), Greeneville (1039).

Government and Laws.—"The General Assembly of the State of Tennessee" consists of a senate and a house of representatives. The number of representatives is based upon the number of voters in each county, "and shall not exceed seventy-five, until the population of the State reaches a million and a half, and shall never be more than ninety-nine. The senators shall not be more than one-third as many as the representatives." Biennial sessions of the legislature are held, during which the members are paid $4 per day. The governor and other executive officers are chosen for a term of two years, with the exception of the secretary of State, who continues in office for four years. Five judges, chosen by popular election, constitute the supreme court. Circuit and chancery courts have been established by the legislature. The term of office for judges is eight years. Priests and ministers of the gospel are ineligible to the legislature. The State is entitled to ten representatives in Congress. The taxable property in 1874 was valued at $289,533,560.

History.—It is probable that Ferdinand de Soto visited the present site of Memphis in 1549. In 1754 a settlement was made by colonists from North Carolina, who were soon driven away by hostile Indians. The first permanent settlement west of the Alleghanies was made on the Tennessee River, in the year 1756, when Fort Loudon was erected. Four years later the Cherokee Indians captured the fort and butchered or reduced to captivity all the whites. Until 1789 the territory was regarded as belonging to North Carolina. In that year it was ceded to the general government. A territorial government was organized in 1794, and Tennessee was admitted to the Union as the sixteenth State June 1, 1796. On the 8th of June, 1861, a majority voted to separate from the United States and to unite with the Southern Confederacy. Fort Henry, upon the Tennessee, and Fort Donelson, upon the Cumberland Rivers, were captured by the Union forces in February, 1862 [see HISTORICAL SKETCH, pp. 139, 142]. Full relations to the Union were restored July 24, 1866. A new Constitution was ratified by the people March 26, 1870. Tennessee takes its name from the Indian designation for its principal river.

TEXAS.

Situation and Extent.—Texas is bounded on the N. W. and N. by New Mexico and the Indian Territory, E. by Arkansas and Louisiana, S. E. by the Gulf of Mexico and S. W. by Mexico. It is situated between latitudes 25° 50′ and 36° 30′ N. and longitudes 16° 30′ and 30° W. from Washington, or 93° 30′ and 107° W. from Greenwich. The extreme length is 810 miles, the breadth 750 miles and the area 274,356 square miles, or 175,587,840 acres. All of the New England and Middle States, together with Maryland, Virginia and North Carolina, have a smaller extent of territory than this one State of Texas. Were all the inhabitants of the

United States placed within its boundaries, the population would be less dense than it now is in the State of Massachusetts.

Physical Features.—*Surface.*—There are three great divisions of the State—viz., Eastern Texas, extending from the Sabine to Trinity River; Middle Texas, from the Trinity to the Colorado; and Western Texas, from the Colorado to the Rio Grande. Along the coast are many narrow islands and peninsulas of alluvial formation, the configuration of which is sometimes entirely changed by the terrible West Indian hurricanes. For a distance of from 30 to 60 miles inland the land is almost monotonously flat. Beyond this is an undulating country, extending for 200 miles, consisting of high rolling prairies, well watered, sufficiently wooded and covered with luxuriant vegetation. Next is a hilly and mountainous district, and beyond this is an elevated table-land. The Llano Estacado [see PHYSICAL GEOGRAPHY, page 159], which covers an area of 100,000 square miles in the north-west, has a general elevation of 2500 feet above the sea: it is scantily wooded and subject to severe droughts. The principal elevations above the sea level which have been noted are Leon Spring, 4240 feet; Eagle Spring, 4842 feet; Painted Camp, 5020 feet; Providence Creek, 5492 feet; and "Highest Point," 5896 feet. *Rivers.*—The Red River constitutes the boundary between Texas and the Indian Territory for 400 miles. Navigation is obstructed by the "great raft" above Shreveport [see LOUISIANA, page 259]. The Sabine constitutes the boundary between Louisiana and Texas; and the Rio Grande, 1800 miles long and navigable for 450 miles, separates Texas and the territory of the United States from Mexico. Within the limits of the State are the Trinity, Brazos, Colorado, Guadalupe and San Antonio, all flowing with a rapid current in a south-easterly direction and discharging their waters into the Atlantic. During the rainy season steamboats ascend these streams to a distance of from 100 to 350 miles. The rivers and bays abound in fish, of which the principal varieties are the redfish (sometimes weighing 50 pounds), pike, codfish, trout, flounder, etc. *Forests.*—Eastern Texas is very heavily timbered. Immense forests of yellow pine extend through the river valleys, yielding pitch, tar and turpentine. Many "motts," or "islands," of timber exist in the prairies. Live-oaks are abundant along the coast. The other most common trees are the ash, beech, cedar, cottonwood, cypress, elm, gum, hickory, hackberry, mesquit, mulberry, oak, pecan, poplar, tapulo, walnut, willow and yapon, or tea tree. *Wild Animals and Birds.*—The black bear, wolf, peccary, moose, deer, antelope, fox, opossum, raccoon, etc., are met with in the forests, and vast herds of buffaloes and mustangs range the prairies. Among the many species of birds are the wild turkey, wild goose, canvas-back duck, pheasant, grouse, plover, woodcock, swan, pelican, paroquet, oriole and mocking-bird.

Soil and Climate.—A deposit of alluvial soil, 30 feet deep and

of inexhaustible fertility, is often found along the river-bottoms. The prairies have a rich, chocolate-colored or "black-wax" loam, resting upon a subsoil of gray clay. A remarkably uniform and pleasant temperature prevails throughout most of the year. Ice seldom forms, and cattle thrive all winter without artificial shelter or food. However, the "Northers" prevail during November, December and January, and there are sometimes storms of terrible severity. During the winter of 1855–6 it is said that one-quarter of all the neat cattle in the State perished from the effects of the cold. The lowest temperature observed was 17 degrees. Hurricanes of very great violence prevail upon the coast. The "September cyclone," or equinoctial storm, is always looked for with apprehension. An account of the ravages of a cyclone in Texas is given in another article [see PHYSICAL GEOGRAPHY, page 179]. The isothermal lines crossing the State are: Spring, 55°–75°; summer, 75°–85°; autumn, 55°–75°; winter, 35°–60°; annual mean, 55°–75°. During the year ending Sept. 30, 1874, the mean temperature at Galveston was 72.8°, and the maximum was 98.5°. Upon 57 days during June, July and August the mercury rose above 90°. The mean for the coldest month (January) was 55°, and for the warmest (August) 84.4°. At Indianola the mean was 70°, the minimum (in February) 36° and the maximum (in August) 100 degrees.

Agricultural Productions.—As a cotton State Texas ranked fifth in 1870. The production during the years 1873 and 1874 was 742,565 bales. Rice and sugar-cane are important crops. Wheat thrives above the 32d parallel of latitude. The Federal census reported 18,396,523 acres in farms, of which 2,964,833 acres were improved; average size of farms, 301 acres (those of California and Oregon alone were larger); value of farms, farm implements and live-stock, $100,971,937; value of productions, $49,185,170. In 1873 the number of acres devoted to Indian corn, wheat, rye, oats, barley, potatoes and tobacco was 1,373,895, and the value of the crops was $22,356,720. The number of live-stock reported in 1874 was 699,100 horses (next to Illinois and Ohio), 97,900 mules, 2,415,800 cattle (more than double the number in Illinois, which ranked second, and nearly one-seventh of all the neat cattle in the United States), 526,500 milch cows, 1,147,400 hogs and 1,338,700 sheep. Most of the fruits common to the Northern States are grown in Texas, and the orange, lemon, banana, lime, fig, pine-apple, nectarine and olive thrive.

Manufactures.—The census reported 2399 manufacturing establishments; hands employed, 7927; value of materials, $6,273,193; value of products, $11,517,302. The leading industries in value were: Lumber, $1,736,482; beef, packed, $1,052,106; cotton goods, $374,598; saddlery and harness, $348,307; tin, copper and sheet-iron ware, $334,665; carriages and wagons, $289,124; hides and tallow, $272,740; flouring-mill products, $254,264. Stoves and hollow-ware of excellent quality are

produced. The numerous rivers afford an abundance of water-power, which has been, as yet, very little improved.

Mineral Resources.—Speaking of the mineral wealth of the country, Col. Forney says: "God in his generosity seems to have given a share of all his best gifts to Texas." Horace Greeley, who made a journey through Texas in 1871, wrote: "As yet the mineral wealth of Texas sleeps undisturbed and useless. She has iron enough to divide the earth by railroads into squares ten miles across, but no ton of it was ever smelted. She has at least five thousand square miles of coal (probably much more), but no ton of it was ever dug for sale. She has gypsum enough to plaster the continent annually for a century, but it lies quiet and valueless—a waste of earth-covered stone." Gold, silver, copper, lead, nickel, alum, cobalt, manganese, arsenic and various precious stones, such as the ruby, agate, garnet, amethyst and opal, have been found. There are large deposits of potters' clay, fire-clay and marl, and extensive quarries of granite, marble, slate, soap-stone, etc. Salt is very abundant. These mineral resources are almost untouched. The total value of the mining products of the State, as reported by the census in 1870, was only $900.

Commerce and Navigation.—There are five customs districts —viz., Brazos de Santiago, Corpus Christi, Paso del Norte, Saluria and Texas. For the year ending June 30, 1874, the value of imports was $4,366,183; value of exports, $21,639,402; number of vessels entered in the foreign trade, 250, of which 103 were American and 147 foreign; vessels cleared, 284, of which 137 were American. The tonnage of all Texas ports was 20,008, divided among 335 vessels. Twenty vessels were built during the year. Cotton was exported to the amount of 274,379 bales.

Railroads.—There were 32 miles of railroad in 1854. In 1874 the mileage had increased to 1650; total capital account, $64,565,342; cost per mile, $40,079; total receipts, $6,968,886; receipts per mile, $4464; receipts to an inhabitant, $7.26; net earnings, $2,798,277. The Texas Pacific Railroad is designed to extend from Shreveport, Louisiana, across Texas, New Mexico and Arizona to the Pacific Ocean, at San Diego.

Public Institutions and Education.—The State Penitentiary, at Huntsville, contains 278 cells, and a new building has just been completed, having 125 cells. Both these buildings are inadequate, as the number of prisoners in 1874 was 1453. The number of homicides reported from Texas during 1870 was 323. Seven paupers were relieved in 1850 and 202 in 1870. An Institution for the Education of the Deaf and Dumb was opened in 1857. The new Constitution makes it the duty of the legislature to provide for the support and maintenance of public schools throughout the State, free to all children between the ages of six and eighteen. In 1874 the school population was 300,000, of whom 129,542 were enrolled in the public schools. The average daily attendance was 83,082; number

of schools, 1874; teachers, 2236. There are 12 colleges and universities, 1 school of theology, 2 schools of medicine and 1 school of science. The Agricultural and Mechanical College of Texas, at Bryan, possesses a property valued at $291,240. Five institutions are reported for the higher education of young ladies. In 1870 the number of libraries was 455, religious organizations 843, with 647 edifices, newspapers 112. In 1875 21 daily newspapers and 168 periodicals of all kinds were published.

Cities and Towns.—*Austin*, the State capital, is situated on the Colorado River, 160 miles above its mouth. Steamboats ply upon the river, and there is railroad connection with Houston. Three daily and two weekly papers are published. The number of inhabitants in 1870 was 4428, and was estimated at 7500 in 1875. *Galveston*, upon an island at the entrance of Galveston Bay, 290 miles west of New Orleans, is the leading city of Texas. It is an important port for the shipment of cotton, lumber, cattle and hides. Steamers run regularly to New Orleans, Havana, New York and Liverpool. It is the seat of the Texas Medical College and the University of St. Mary. The most important buildings are the Custom-House, Court-House, City Hall, Opera-House and House of Refuge. There are 15 churches and 11 newspapers, of which 5 are issued daily. The population was 13,815 by the Federal census, and is estimated, in 1875, at 25,000. *Houston*, on Buffalo Bayou, 45 miles above Galveston, is a rapidly-growing city. It was settled in 1836, and named in honor of Gen. Sam. Houston. The City Hall and Market-House was erected at a cost of $400,000. There are extensive machine- and car-shops, iron- and brass-founderies and lumber-yards. Three daily and six weekly newspapers are published, and 12 churches represent the various denominations. Railroads diverge from Houston in six directions. The population is estimated at 20,000; it was 13,818 in 1870. *San Antonio* was settled by the Spaniards in 1694. It has two daily newspapers and is the principal town in Western Texas. Population, 12,256. Other leading towns are Brownsville, Corpus Christi, Jefferson, Sherman, Dallas, Georgetown, Indianola and Matagorda.

Population.—No census of the population of Texas was taken while it was under Mexican rule. The estimated number of inhabitants in 1806 was 7000, and in 1836, 52,000. According to the United States census, the population in 1850 was 212,592 (slaves, 58,161); 1860, 604,215 (slaves, 182,566); 1870, 818,579 (free colored, 253,475). The foreign-born numbered 62,411, and the natives 756,168, of whom 388,510 were born in Texas and 367,658 in other parts of the United States. Only 26,050 native Texans were residing outside the State of their birth. The density of population was 2.98 to a square mile.

Government and Laws.—The legislature consists of 30 senators and 90 representatives, who meet biennially and are paid eight dollars per

day. The executive officers are a governor, lieutenant-governor, comptroller, treasurer and commissioner of the general land-office. Judicial authority is vested in a supreme court of three judges, and thirty-five district courts, presided over by a single judge, who is required to hold three terms of his court annually in each county of his district. A superintendent of immigration is appointed by the governor, and holds his office for four years. General elections are held on the first Tuesday after the first Monday in November of every alternate year, beginning with 1872. Homesteads are exempt from execution for debt. The public debt on the 1st of January, 1875, was $4,012,421.

History.—Fort St. Louis was erected near the present site of Matagorda by a company of French colonists, in 1687. In 1690 the Spaniards established, not far from the same spot, the mission of San Francisco. The territory was long under the government of Mexico, and shared in the internal dissensions of that country. The privilege of maintaining a State government of their own was refused to them, and the Texans took up arms. The first battle was fought Oct. 2, 1835. Hostilities continued at intervals for ten years. On the 1st of March, 1845, Texas became one of the United States. The *Mexican war* followed [see HISTORICAL SKETCH]. An ordinance of secession was passed Feb. 5, 1861. A new Constitution was adopted in 1869. In the summer of 1874 six companies of soldiers were organized for service against hostile Indians, and many of the settlements were thus saved from destruction. A terrible cyclone desolated a belt of country 40 miles wide on the 16th and 17th of September, 1875. Water stood five feet deep in the streets of Galveston, twenty-five buildings were blown down, several persons were killed and property was damaged to the amount of $200,000. The town of Velasco was entirely swept away; only two houses remained standing at Matagorda; and the word from Indianola was: "One-quarter of the people are gone. Dead bodies are strewn for twenty miles along the bay. Nine-tenths of the houses are destroyed." Only five out of the three hundred houses in the town were left standing. Four hundred lives were destroyed in the State by this cyclone.

VERMONT.

Situation and Extent.—Vermont is bounded on the N. by Canada East, E. by New Hampshire, S. by Massachusetts and W. by New York. It is situated between latitudes 42° 44′ and 45° N. and longitudes 3° 35′ and 5° 27′ E. from Washington, or 71° 33′ and 73° 25′ W. from Greenwich. The length from north to south is 158 miles, the breadth between 40 and 90 miles and the area 10,212 square miles, or 6,535,680 acres.

Physical Features.—*Surface.*—The Green Mountains, called by the early French travellers *Monts Verts*, extend through the whole length of Vermont and form the water-shed between the affluents of the Connec-

ticut River on the east and those of Lake Champlain and the Hudson on the west. The most elevated summits are: Mount Mansfield, 4359 feet; Camel's Hump, 4188 feet; Killiugtou's Peak, 3675 feet; and Ascutney, 3320 feet. Most of the hills are smooth and rounded and wooded or covered with grass to the very top. *Rivers and Lakes.*—The Connecticut River constitutes the eastern bouudary, and drains an area of 3750 square miles in the State. At Bellows Falls the river has a descent of 44 feet in the course of half a mile. Its principal affluents are the Passumpsic, White, Queechy, Black and West Rivers. Flowiug westward are the Missisquoi, Lamoille, Onion or Winooski and Otter Rivers, which discharge their waters into Lake Champlain. This lake, which constitutes the boundary between Vermont and New York for 140 miles, has au extreme width of 16 miles and is deep enough to float the largest vessels. Its waters find an outlet through the Richelieu, or Sorel, into the St. Lawrence. Salmon-trout, bass, whitefish, pickerel, etc., are caught in great numbers from the lake. It contains several islands, of which the largest are North Hero, South Hero and La Motte. Lake Memphremagog, on the Canada line, lies partly within the limits of Vermont, aud receives several small tributaries from that State. *Forests.*—Upon the Green Mouutains are heavy growths of the various evergreen trees, such as the fir, cedar, spruce, pine and hemlock. Hard wood is also abundant, iucluding the ash, beech, birch, elm, hickory, basswood, butternut, oak, sugar-maple and most of the trees common to the Northern States.

Soil and Climate.—A deep, black, alluvial soil, of very great fertility, is characteristic of the river valleys. Some of the uplands have a loam which is strong and quick and produces large crops. Excellent pasturage is afforded on the slopes of the hills and mountains. The valley of Lake Champlain, protected from the north-east winds by the mountaius and open toward the south, is very favorably situated for agriculture. Very great variatious of temperature are experienced. The mercury reached 106° at Montpelier on the 8th of June, 1871, and on Christmas day, 1872, *the mercury congealed*, which indicated a temperature of at least 40 *degrees below zero.* Thus the range of the thermometer was 146 degrees. East Calais enjoyed Christmas day, 1873, with the mercury indicating —38 degrees. Duriug the year endiug Sept. 30, 1874, the mean temperature at Burlington was 43.6°, the maximum 89° and the minimum —20.5°. Upon eleven days the mercury fell below zero. The isothermal lines crossing Vermont are: Spring, 40°; summer, 62°–67°; autumn, 43°–47°; winter, 15°–20°; annual mean, 45°. Snow falls about the middle of November and remains until the end of April.

Agricultural Productions.—Vermont has a smaller proportion (32.1 per cent.) of its farm lands unimproved than any other States except Illinois (25.3 per cent.) aud New York (29.6 per cent.). The last census

reported 4,528,804 acres in farms, of which 3,073,257 acres were improved; average size of farms, 134 acres; value of farms, farm implements and live-stock, $168,506,189; value of productions, $34,647,027. The forest products were valued at $1,238,929, and the orchard products at $682,241. This State ranked first in the production of maple-sugar (8,894,302 pounds), and next to New York and Ohio in cheese (4,830,700 pounds). In 1873 the Indian corn, wheat, rye, oats, barley, buckwheat, potato, tobacco and hay crops occupied 1,065,334 acres, and were valued at $18,568,796. The number of live-stock in 1874 was 71,000 horses, 128,000 oxen and other cattle, 195,700 milch cows, 53,500 hogs and 543,600 sheep (more than in any other New England State).

Manufactures.—The number of manufacturing establishments reported was 3270; hands employed, 18,686; value of materials, $17,007,769; of products, $32,184,606. The value of the leading industries was: Woollen goods, $3,550,962; lumber, sawed, $3,142,307; lumber, planed, $2,526,228; flouring-mill products, $2,071,594; leather, tanned, $1,249,942; carriages and sleds, $839,029; cotton goods, $546,510; scales and balances, $1,629,000. A firm in this State, which has been in existence for forty-five years, manages "the largest scale manufactory in the world." Its workshops cover ten acres, and the products are sent to every important nation on the globe; the annual sales amount to $2,000,000.

Minerals and Mining.—Numerous deposits of iron ore have been found among the mountains. Copper, lead and manganese exist in small quantities. Kaoline, or potters' clay, is abundant. The marble quarries are of great extent, and furnish marble both white and variegated. Professor Collier is of the opinion that "there is hardly a farm in the State where hidden [mineral] wealth may not exist." The product of 54 mining establishments, at the last census, was valued at $905,410, and the value of the marble- and stone-work was $960,984.

Commerce and Navigation.—Burlington is the only port of entry. Quite an extensive commerce is carried on with the Canadas through Lake Champlain. During the year ending June 30, 1874, the value of imports was $7,282,166, and of exports, $4,076,355; 98 American and 859 foreign vessels entered, and 76 American and 865 foreign vessels cleared. Six steamers and 19 other vessels, with an aggregate capacity of 5494 tons, belong to the district of Vermont.

Railroads and Canals.—The mileage of railroads in 1874 was 778; total capital account, $27,755,284; cost per mile, $35,638; receipts, $4,463,678; receipts to an inhabitant, $13.36; receipts per mile of railroad, $6002; net earnings, $1,782,571. Real estate belonging to railroads is subject to taxation. A canal connects Lake Champlain with the Hudson River.

Public Institutions and Education.—A State-Prison was

established at Windsor in 1807. The Asylum for the Insane, which possesses a property valued at $500,000, is not a State institutiou, although it has often received aid from the State. Thc deaf and dumb are supported at the asylum in Hartford, Connecticut. A Reform School was established at Waterbury in November, 1865. The buildings were burned December 12, 1874, and in January, 1875, the legislature appropriated $30,000 for a new building to be located at Vergennes. There is a Home for Destitute Children at Burlington. A compulsory school law was passed in 1867. Every child of good health, between the ages of 8 and 14 years, is required to attend school for at least three months in each year. From 5 to 20 years is the legal school age. In 1874 the number of school districts was 2754; children in the State, 89,541; pupils enrolled, 78,139; teachers, 4406; expenditures for schools, $622,227; value of school buildings, $1,334,364. There are three colleges—viz., Middlebury College, Norwich University (military) and the University of Vermont and State Agricultural College, which possesses a property valued at $416,972; it embraces classical, medical and scientific departments, and admits young women upon the same couditions as young men. The last census reported 1792 libraries, 47 periodicals, 3 of which were daily (increased to 6 daily newspapers and 68 periodicals of all kinds in 1875), aud 699 religious organizations, having 744 edifices.

Population.—The number of inhabitants at successive decennial periods has been as follows: 1790, 85,425; 1800, 154,465; 1810, 217,895; 1820, 235,966; 1830, 280,652; 1840, 291,948; 1850, 314,120; 1860, 315,098 (an increase of 978, which is about one-third of one per cent.); 1870, 330,551 (an increase of 15,453, which is less than 5 per cent.). The foreign born numbered 47,155, and the native, 283,396, of whom 243,814 were born iu Vermout and 39,582 had come in from other States; 177,164 natives of Vermont were residing in other parts of the Union, showing a loss of 137,582 in native population. There were 32.37 persons to a square mile.

Cities and Towns.—*Montpelier*, the capital, occupies a central position in the State. The Capitol is a fiue granite building, erected at a cost of $150,000. More than 15,000 volumes are contained in the State library. The town has several manufactories, seven churches and five newspapers. Population, 3023. *Burlington*, the largest city of Vermont, had a populatiou of 14,387 in 1870. Its harbor, protected by a breakwater, is the finest on Lake Champlain. There is a very extensive lumber trade. Five periodicals are published. The University of Vermont occupies a site commanding a fine view. *Rutland* (population, 9834) has very extensive quarries of marble and slate. It is at the intersection of three railroads, and supports two daily newspapers. *Bennington* (5760) is the centre of a fine agricultural region. Porcelain ware is manufactured in

large quantities. *Brattleborough* (4933) was settled in 1724, and is the oldest town in the State. The Asylum for the Insane is the most prominent building. Six newspapers are published. *Middlebury* (3086) is the seat of Middlebury College, and contains several factories, large marble quarries, five churches and a newspaper office. The other leading towns are St. Albans (7014), which contains the railway-shops of the Vermont Central, St. Johnsbury (4665), Brandon (3571), Northfield (3410), Castleton (3243), Randolph (2829), Waterbury (2623), Newbury (2241) and Windsor (1699).

Government and Laws.—A council of 14 members assembles once in seven years to propose such amendments to the Constitution as may be deemed necessary. There was no senate until the year 1836. The General Assembly, which meets biennially, consists of a senate of 30 members and a house of representatives of 249 members (one from each town and city). Executive officers are elected for a term of two years. The supreme court consists of six judges, chosen by the legislature, and receiving a salary of $2500 each. There are also county courts for each of the 14 counties, courts of chancery and probate courts. Justices of the peace are elected for each town. A prohibitory liquor law is in force, and the liquor-seller is responsible for damages done by an intoxicated person.

History.—Champlain, with two other French officers, traversed a portion of this territory in 1609. The first settlement was made in 1724, at Fort Dummer, within the limits of the present town of Brattleborough. A settlement was begun on the eastern shore of Lake Champlain by the French in 1731. New Hampshire claimed jurisdiction over the territory, and Gov. Wentworth made grants of land to settlers in 138 townships. New York also based a claim upon the grants of King Charles II., and tried to exert her authority. Attempts to dispossess them of their lands were resisted by the settlers, who applied the "beech seal" (whipping with beechen rods) to the New York officers, until none could be found willing to serve writs. The "Green Mountain Boys" thus defended themselves for several years. An amicable adjustment was finally made by the payment to New York of $30,000 in settlement for all her claims. In January, 1777, a general convention proclaimed that the territory known as the New Hampshire Grants was of right a free and independent jurisdiction, to be henceforth called by the name of "New Connecticut, alias Vermont." During the Revolutionary war the Green Mountain Boys bore an honorable and conspicuous part. At Bennington, on the 16th of August, 1777, the British regulars were routed by the undisciplined yeomanry. Vermont was admitted to the Union on the 4th of March, 1791. During the war of 1812 the frontiers were threatened, but the capture of the British squadron on Lake Champlain saved Vermont from further molestation from that quarter, until the Confederate raid upon St. Albans (Oct. 19, 1864).

VIRGINIA.

Situation and Extent.—The State of Virginia is bounded on the W. and N. W. by Kentucky and West Virginia, N. E. and E. by Maryland, Chesapeake Bay and the Atlantic Ocean, and S. by North Carolina and Tennessee. It is situated between latitudes 36° 30′ and 39° 40′ N. and longitudes 1° 35′ E. and 6° 35′ W. from Washington, or 75° 25′ and 83° 35′ W. from Greenwich. The extreme length is 425 miles, the breadth 205 miles and the area 38,348 square miles, or 24,542,720 acres.

Physical Features.—*Surface.*—By its natural configuration the State is divided into three districts. (1.) Tide-water Virginia, extending from the coast to the falls of the rivers, contains no mountains or high hills, but is an alluvial country, having low and marshy lands along the seaboard, which terminate in the south-east in the Great Dismal Swamp. (2.) Piedmont Virginia, which extends from the river-falls to the Blue Ridge, is rolling and picturesque, and in its western part broken by ranges of low hills. (3.) The great valley of Virginia includes all the region between the Blue Ridge and the Alleghanies. The great Appalachian chain of mountains extends over a breadth of 150 miles, in parallel ridges and low summits, with occasional lofty spurs. The Peaks of Otter attain an elevation of 5307 feet above the sea level. John Randolph of Roanoke once visited this summit, and as he saw the sun rise over the magnificent scene he said to his servant: "Never from this time believe any one who tells you that there is no God." Five States can be seen from the top of Bald Knob, upon the side of which, 4500 feet above the sea, is Salt Pond (containing *fresh* water, but called salt from an adjacent salt lick), with a depth said to be unfathomable. Virginia contains very many objects of interest to tourists. The *Natural Bridge* has an arch 215 feet above the stream, with a span of 93 feet and a width of 80 feet. A stage road runs over it. The *Natural Tunnel*, in Scott county, is said by Pollard to be "undoubtedly the greatest wonder in Virginia." It extends for 800 feet through the solid rock, and has a height of 80 feet. A remarkable cascade, called Puncheon Run Falls, down which the water plunges 2000 feet, has lately been brought into notice. There are many caverns, among the most noted of which are Weyer's Cave, 1600 feet in length, Madison's Cave and the "Cave of the Unknown." *Mineral springs* abound along the mountain chain from the borders of North Carolina to the Potomac, making this region "a sufficient sanitarium for all America." There are white, yellow, blue, red and salt sulphur springs, offering medicines compounded in Nature's laboratory for the cure of a multitude of human ailments. A temperature of 106 degrees has been noted in the warm springs. *Rivers.*—The Potomac separates Virginia from Maryland and affords navigation for large vessels as far as Alexandria, where it is a mile and a quarter wide. Its principal tributary is the Shenandoah, which drains the great valley of

Virginia west of the Blue Ridge and unites with the Potomac at Harper's Ferry. The Rappahannock, the York and the James take their rise in the mountains, and flowing nearly parallel to the Potomac in a south-easterly direction, discharge their waters into Chesapeake Bay. Rapids and falls limit the navigable course of each to about 100 miles. South-eastern Virginia is drained by the Meherrin and the Nottoway, which unite in North Carolina to form the Chowan. The Holston, the Clinch and Powell's Rivers drain the south-western counties and afterward combine with the Tennessee. *Forests.*—Timber is very abundant. The hickory, white and black oak, ash, chestnut, beech, maple, cedar, pine, etc., grow to an enormous size. When oak lands are cleared a growth of pines springs up, and when pines are removed oaks take their places. Fields once cultivated, if left to themselves, are quickly covered with pines. The last census reported 8,294,734 acres of woodland upon farms.

Soil and Climate.—The soil in the east is composed of a vegetable mould, resting upon an alluvial, clayey sand of great depth. Piedmont Virginia has a limestone basis for its fertile clay and loam. The valleys of the south-west contain the celebrated "blue-grass" soil, which is impregnated with lime and exceedingly productive. A book published in London in 1757 speaks of the Virginia climate as follows: "The heats in summer are excessively great, but not without the allay of refreshing sea-breezes. Their winter frosts come on without the least warning. After a warm day, toward the setting in of winter, so intense a cold often succeeds as to freeze over the broadest and deepest of their great rivers in one night; but these frosts, as well as their rains, are rather violent than of long continuance." The writer must have generalized from an exceptional winter, as the rivers are entirely unobstructed by ice throughout many seasons. During the year ending Sept. 30, 1874, the maximum temperature at Cape Henry was 98 degrees; at Lynchburg the maximum was 97°, and the mean for the year 56.5°; at Wytheville, among the mountains, the maximum was 95°, and the mean 51.3° (more than a degree lower than the mean for Philadelphia); at Norfolk the mean was 58.4°, the minimum 15° and the maximum 102°; upon 19 days the mercury sank below 32°, and upon 34 days rose above 90°. The rainfall at Wytheville was 40.66 inches, at Lynchburg 44.74 inches and at Norfolk 55.27 inches. Upon the isothermal charts the lines crossing Virginia are: Spring, 55°; summer, 72°–77°; autumn, 52°–60°; winter, 30°–40°; mean, 55°–60°.

Agricultural Productions.—The great staple, from the earliest settlement, has been tobacco, which grew "as tall as an ordinary-sized man" [see AMERICAN AGRICULTURE]. In 1873 the product of 82,200 acres devoted to tobacco culture was 50,000,000 pounds (Kentucky grew three times as much), valued at $4,600,000. The total value of the Indian corn, wheat, rye, oats, barley, buckwheat, potato, tobacco and hay crops

grown upon 2,427,804 acres was $30,768,950. The last Federal census reported 18,145,911 acres in farms, of which 8,165,040 acres were improved; value of farms, farm implements and live-stock, $246,132,550; value of productions, $51,774,801; average size of farms, 246 acres. Some cotton was grown in the southern counties. In 1874 the State contained 189,300 horses, 29,600 mules, 405,700 oxen and other cattle, 234,000 milch cows, 753,100 hogs and 367,500 sheep. Nearly 60 per cent. of the workers were employed in agriculture.

Manufactures.—The number of manufacturing establishments was 5933; hands employed, 26,694; value of materials, $23,832,384; value of products, $38,364,322. Among the leading industries in value were: Tobacco, chewing, smoking and snuff, $6,935,249; flouring-mill products, $6,581,396; iron, forged and rolled, $1,994,146; iron, castings, $769,274; iron, pig, $619,820; lumber, $1,609,966; cotton goods, $1,435,800; cars, freight and passenger, $613,036; machinery, $511,485.

Minerals and Mining.—Coal formations underlie 21,000 square miles. Anthracite coal is found between the James and the Potomac; the bituminous seams are of great thickness. Iron, lead, gold, copper, manganese and zinc are found. The deposits of marl, plaster, limestone and marble are extensive. Salt-wells exist, which yielded 10,000 bushels of salt per day during the war. South-western Virginia is especially rich in minerals. The product of 27 mines reported at the last census, which empoyed 997 hands, was $409,914.

Commerce and Navigation.—An extensive commerce was carried on from Virginia during the colonial days. The imports of this State and Maryland during the year 1770 were valued at upward of three millions of dollars, and the exports at nearly two millions. There are now seven customs districts—viz., Alexandria, Cherrystone, Norfolk and Portsmouth, Petersburg, Richmond, Tappahannock and Yorktown. During the fiscal year ending June 30, 1874, 65 American and 45 foreign vessels entered and 80 American and 78 foreign vessels cleared in the foreign trade; the value of imports was $236,566, and of exports, $5,299,670. Belonging in the State were 1017 vessels, of which 74 were steamers. Fifty vessels, including nine steamers, were built.

Railroads and Canals.—The railroad statistics for 1874 were: Miles of railroad, 1638; total capital account, $96,324,418; cost per mile, $46,332; receipts, $6,842,633; receipts per mile, $4112; receipts to an inhabitant, $5.36; net earnings, $2,196,418. The James River and Kanawha Canal was projected to connect the James with the Ohio, but it is estimated that $40,000,000 would be needed to complete it. A canal 23 miles long passes through the Dismal Swamp, connecting Chesapeake Bay and Albemarle Sound.

Public Institutions and Education.—The State Peniten-

tiary, at Richmond, is conducted on the "silent system." There are three Asylums for the Insane, located at Williamsburg, Staunton and Richmond. The Eastern Asylum is the oldest in the United States, having been established in 1773. The Institution for the Deaf and Dumb and the Blind is at Staunton. A general school law was passed July 11, 1870. In 1874 the number of public schools was 3696; pupils enrolled, 160,859; average attendance, 91,175; teachers, 3757; value of school property, $524,638. There are eight colleges and universities. William and Mary College was founded in 1692, and is the oldest collegiate institution in the country, with the exception of Harvard [see AMERICAN EDUCATION]. At the University of Virginia all the studies are elective. Professional instruction is afforded by five schools of theology, three of law, two of medicine and six of science. A school of instruction, under the direction of the United States Signal Service Bureau, has been established at Fort Whipple. The number of libraries in 1870 was 4171; newspapers, 114, of which 16 were daily; religious organizations, 2582, with 2405 edifices. In 1875 the periodicals had increased to 142, of which 21 were published daily.

Cities and Towns.—*Richmond*, the capital, is situated upon the James River. Large vessels come up to the docks, and railroads radiate from the city in five directions, giving facilities for a very extensive wholesale trade. There are large tobacco warehouses, iron-works, founderies, machine-shops, etc. Twenty-two periodicals are published, of which seven are issued daily. The number of inhabitants was 51,038 in 1870, and is estimated at 70,000 in 1875. *Norfolk*, upon the south side of Chesapeake Bay, has a harbor open at all seasons of the year, which admits vessels drawing 30 feet of water. Steamers run regularly to Richmond, Baltimore, Philadelphia and New York. The shipment of fruits and vegetables during 1874 was 1,300,000 barrels and crates. For the season of 1874–5 the receipts of cotton were estimated at 500,000 bales. The city has 26 churches and three daily newspapers. Population, 19,229 in 1870, and estimated at 25,000 in 1875. Gosport Navy Yard is near Norfolk. *Lynchburg*, on the James River, carries on a large trade with Southwestern Virginia. It contains nearly 50 tobacco warehouses, and large founderies and iron-works have been established in the vicinity. There are 10 churches and 6 newspapers. Population, 6825 in 1870, and now about 13,000. *Petersburg* (population, 18,950), thirty miles south of Richmond, is an important railway centre, having lines extending in five directions. Three daily newspapers are issued. *Lexington* (population, 2873) has been called the "Athens of Virginia." Washington College was established at this place, under the name of Liberty Hall, in 1776, and received its endowment from General Washington. The Virginia Military Institute was founded in 1839. *Alexandria*, on the Potomac River, seven miles below Washington, belonged to the District of Columbia until 1846, when

it was ceded back to Virginia. Population, 13,570. *Bristol*, in the valley, near the Tennessee line, is the centre of a large trade carried on by wagons, "the white ships of the mountains." Other important towns are Portsmouth (10,492), Staunton (5120), Winchester (4477), Fredericksburg (4046), Danville (3463) and Charlottesville (2838).

Population.—In 1649 there were 15,000 English inhabitants and 300 negroes. During the eighteenth century the population doubled every 27 years, and Jefferson computed that if the same ratio of increase continued Virginia would contain upward of four and a half millions of people in 1863. By the Federal census, the number of inhabitants at successive decennial periods (including West Virginia until 1870) was as follows: 1790, 747,610 (slaves, 292,627); 1800, 880,200 (slaves, 345,796); 1810, 974,600 (slaves, 392,516); 1820, 1,065,116 (slaves, 425,148); 1830, 1,211,405 (slaves, 469,757); 1840, 1,239,797 (slaves, 448,987); 1850, 1,421,661 (slaves, 472,528); 1860, 1,596,318 (slaves, 490,865); 1870 (West Virginia excluded), 1,225,163 (free colored, 512,841). Virginia ranked first in population from 1790 to 1810, second in 1820, third in 1830, fourth in 1840 and 1850, fifth in 1860 and tenth in 1870. In slave population it ranked first during the whole period from 1790 to 1860. In free-colored population it ranked next to Georgia in 1870. Of the total number of inhabitants (1,225,163) at the last date, 1,163,822 were born in the original State, 13,754 were foreign born and 47,587 had come in from other States, of which number 16,869 were born in North Carolina, 7344 in Maryland, 4908 in New York, 4046 in Pennsylvania, etc. The density of population was 31.95 persons to a square mile.

Government and Laws.—The legislature consists of a senate of 43 members and a house of delegates of 138 members. The supreme court of appeals has five judges, holding office for twelve years. There are sixteen judges of the circuit court, whose term of service is eight years. The county and city judges serve for three years. All judges are elected by the legislature. The State election is held on the first Monday in November. A convention met at Richmond, Dec. 3, 1867, for the revision of the Constitution, and the new Constitution was ratified by the people July 6, 1869. The State is divided into 99 counties. By a constitutional amendment, ratified by a large majority in 1874, the township system was abolished.

History.—Sir Walter Raleigh bestowed the name of Virginia upon this territory, in honor of the virgin queen Elizabeth. Jamestown, which was founded May 13, 1607, claims the honor of being the oldest English settlement in America. Colonists came over in large numbers during a few succeeding years. Indian hostilities might have proved fatal to the new colony but for the intervention of Pocahontas, who saved Capt. John Smith from death, and afterward disclosed a plot formed by the savages

for the massacre of the settlers. In spite of the precautions taken, more than 350 were killed by the Indians on the 22d of March, 1622. The Church of England was established by law in 1662. In 1754 hostilities began between the French and the English. After the defeat of Braddock, in 1755, George Washington was put in command of the Virginia troops, and gained a military experience which fitted him for the command of the Continental army in the struggle for independence twenty years later. Eastern Virginia suffered very severely during the Revolutionary war, which was virtually terminated by the surrender, upon her soil, of Lord Cornwallis, Oct. 19, 1781. An ordinance of secession was passed April 17, 1861, and Richmond soon after became the capital of the Southern Confederacy. The citizens of the western counties dissented from this action, and withdrawing, formed the new State of West Virginia. On the 27th of January, 1870, the government of the State was transferred to the civil authorities. On the 27th of April, in the same year, the floor of the capitol at Richmond gave way, and 60 persons were killed and 120 wounded.

WEST VIRGINIA.

Situation and Extent.—West Virginia is bounded on the N. W. by Ohio, N. E. by Pennsylvania and Maryland, S. E. and S. by Virginia and S. W. by Kentucky. It is situated between latitudes 37° 5′ and 40° 37′ N. and longitudes 0° 40′ and 5° 35′ W. from Washington, or 77° 40′ and 82° 35′ W. from Greenwich. The extreme length from N. E. to S. W. is 270 miles and the breadth 125 miles. Between Ohio and Pennsylvania is "the Pan Handle," having in some places a width of only 6 miles. The area of the State is 23,000 square miles, or 14,720,000 acres.

Physical Features.—*Surface.*—Extending over a breadth of 100 miles in the east are the ridges and spurs of the Alleghany Mountains, the peaks of which have an average elevation of 2500 feet. The "Summit" reaches a height of 2650 feet. Although the hillsides are steep, they are seldom rocky, and vegetation clothes them to the very top. Greenbrier county has most of its surface from 1800 to 2000 feet above the sea level. The country gradually falls away toward the Ohio River, where the uplands have a height of from 600 to 800 feet. Bluffs rise abruptly from the Kanawha River, giving an elevation of 1000 feet to the surrounding lands. The "Hawk's Nest," in Fayette county, affords a very extensive view. *Rivers.*—The Ohio washes the western boundary for 300 miles, affording steamboat navigation for the whole distance. Its principal tributaries are the Guyandotte, Little Kanawha and the Great Kanawha ("River of the Woods," in the Indian dialect), 400 miles long, which rises in North Carolina and drains 10,000 square miles of territory. It is navigable for 100 miles to the falls, where the water has a descent of 50 feet. Flowing into the Great Kanawha are the Greenbrier, Gauley, Elk and Coal Rivers.

Big Sandy River and Tug Fork constitute a part of the boundary between West Virginia and Kentucky. In the mountains of Randolph county are the sources of the Monongahela, which is navigable as far as Fairmount. The Potomac constitutes the north-eastern boundary for 100 miles. *Forests.*—Every part of the State is well wooded, while the mountains and the counties south of the Kanawha are covered with immense primeval forests, affording the finest varieties of timber. Among the trees are found the oak, curl- and sugar-maple, black-walnut, hickory, locust, ash, chestnut, butternut, hemlock, white and yew-pine, cherry, etc. *Mineral Springs.*—Many of the sulphur springs which have given celebrity to Virginia since Washington and his compeers congregated at the Berkeley are now within the limits of West Virginia. Twelve thousand gallons of water per minute flow from a single spring. Chemical analysis shows that these waters are rich in a great number of mineral ingredients which make them a fountain of health to invalids.

Soil and Climate.—Soils are found of every grade. A friable loam, resting upon a substratum of clay, slate, sandstone or limestone, is very common upon the hillsides, while a deep and fertile alluvium is characteristic of the river valleys. Even among the mountains there is said to be little land which might not be made productive. The climate has no great extremes either of heat or cold. During a period of five years the average of the five hottest days was 90 degrees, and of the five coldest days 6 degrees. The mean for two years at Lewisburg was 54.6°. During the year ending Sept. 30, 1874, the mean at Morgantown was 53.5°; mean of the coldest month (November), 38.2°; mean of the warmest month (June), 74.2°. The thermometer indicated 1° below zero January 17, and 97° above zero July 8. Upon 16 days the mercury reached 90°. On the isothermal charts the lines crossing West Virginia are: Spring, 50°–52°; summer, 70°–72°; autumn, 52°–55°; winter, 30°; annual mean, 50°–52°.

Agricultural Productions.—The last census reported 8,528,394 acres in farms, of which 2,580,254 acres were improved; average size of farms, 214 acres; value of farms, farm implements and live-stock, $120,892,738; value of productions, $23,379,692. The product of 945,349 acres devoted to Indian corn, wheat, rye, oats, barley, buckwheat, potatoes, tobacco and hay, in 1873, was $14,187,511. In 1874 there were in the State 104,600 horses, 2390 mules, 242,500 oxen and other cattle, 124,300 milch cows, 334,000 hogs and 555,900 sheep. Of those whose occupations were reported, 64.19 per cent. were employed in agriculture.

Manufactures.—The number of manufacturing establishments was 2444; hands employed, 11,672; value of materials, $14,503,701; value of products, $24,102,201. Products of iron were the leading industries, and were valued as follows: Nails and spikes, cut and wrought, $4,665,000; iron, forged and rolled, $4,025,620; iron, pig, $577,200; iron, cast-

ings, $291,972; stoves, heaters and hollow ware, $274,100. Salt was produced to the value of $1,507,605; lumber, $1,344,512; leather, tanned, $527,016, and leather, curried, $313,229; coal oil, rectified, $432,650; cooperage, $488,476; woollen goods, $370,191; carriages and wagons, $303,690; tobacco, cigars, $268,348.

Minerals and Mining.—West Virginia has mineral treasures of immense value. Iron ores are abundant, and some of the best yield 83 per cent. of pure metal. Coal measures underlie thousands of square miles, yielding bituminous, splint, peacock and cannel coal. Petroleum is plenty enough to have afflicted most of the inhabitants with the "oil fever" [see PHYSICAL GEOGRAPHY, pp. 186–189]. Marble, limestone, flagstones, etc., exist in nearly every section. Silver, copper, nickel, lead, antimony, arsenic, sulphur, gypsum, borax, sodium, alum and fire-clay have been found. Salt-wells yield millions of bushels of salt every year. In 1870 there were 185 mining establishments; hands employed, 1527; value of products, $2,538,531.

Commerce and Navigation.—No direct foreign commerce is carried on from the ports of this State, but 234 vessels, with an aggregate tonnage of 23,652, are employed in the river trade. Thirty-five vessels, of which seven were steamers, were built during the fiscal year ending June 30, 1874.

Railroads and Canals.—Extending across the State is the Baltimore and Ohio Railroad, which ascends 1900 feet within a distance of 17 miles. The railroad mileage in 1874 was 576; average cost per mile. $35,322; receipts per mile, $10,240. The Ohio and Chesapeake Canal, extending along the Potomac, has a course of 100 miles across West Virginia; and the James River Canal is designed to extend through to the Great Kanawha River.

Public Institutions and Education.—The State Penitentiary, at Watson, contains 224 cells. The Asylum for the Insane, at Weston, is situated upon a farm of 273 acres; the original plan provided for buildings having a frontage of 1200 feet. An Asylum for the Deaf, Dumb and Blind has been established at Romney. In 1865 a system of *free schools* was established, and the laws were amended in 1873. Educational statistics for 1873–4 were given as follows: Number of schools, 2857; teachers, 3082; children, 171,793; pupils, enrolled, 81,100; value of school-houses, $1,216,892; expenditures for schools, $748,064; amount of State school fund, $211,825. Three normal schools are in successful operation. The colleges, three in number, are Bethany College, West Virginia College and West Virginia University. With the last the Agricultural College is connected, and the entire property of the University is valued at $200,000. Theological instruction is given at St. Vincent's College. The census reported 1728 libraries, 59 periodicals (increased to 75,

of which 6 were published daily, in 1875) and 1529 religious organizations, having 1018 edifices.

Cities and Towns.—*Wheeling*, the capital of West Virginia and its leading commercial and manufacturing city, is situated on the Ohio River, 95 miles below Pittsburg and 365 miles above Cincinnati. A wire suspension bridge 1010 feet long spans the river. Railroads radiate in four directions. The manufactories are very numerous and extensive, including founderies, stove-works, glass-works, breweries, tanneries, paper-mills, oil-distilleries, planing-mills, machine-shops, iron-works for the production of bar-, sheet-, plate- and railroad-iron, etc. There are six newspapers, three of which are issued daily. Population in 1870, 19,280, and estimated at 27,000 in 1875. *Parkersburg*, the second city of the State, is situated at the junction of the Little Kanawha River with the Ohio. This is the geographical and business centre of the "oil region," and has grown with extreme rapidity. A large wholesale trade is carried on, and there are several manufacturing establishments, tanneries, oil-refineries, breweries and pork-packing houses. A daily newspaper and six other periodicals are issued. The population numbered 5546 in 1870, and was estimated at 8000 in 1875. *Charleston*, upon the Great Kanawha River, 60 miles above its mouth, was made the capital of West Virginia by an act which took effect April 30, 1870. A State-House was erected at a cost of $60,000; but the citizens of many parts of the State found Charleston difficult of access, and a bill passed the legislature providing for the removal of the capital to Wheeling. The constitutionality of the act was questioned and the matter was brought before the Supreme Court, which, on the 13th of September, 1875, declared, with the unanimous concurrence of all the judges, that the capital removal bill was constitutional. The trade of the Kanawha valley, which is rich in salt, iron, timber, coal and agricultural products, centres at Charleston. There are four newspapers and eight churches. Population, 3162 in 1870, and about 5000 in 1875. *Martinsburg*, in the north-eastern corner of the State, contains extensive railroad repair-shops, eleven churches and two newspapers. Population, about 7000, in 1875; in 1870, 4863. The other most populous towns are Bolivar (2892), Mill Creek (2821), Moorefield (2676), Morgan (2536) and Blue Sulphur (2148).

Population.—The population of West Virginia in 1870 (which was the first Federal census taken after it became a separate State) was 442,014, of whom 17,980 were colored; 17,091 were foreign and 424,923 native born; 381,297 were born in Virginia or West Virginia, and 43,626 had come in from other States. There were 19.22 persons to a square mile. Twelve of the States were less densely peopled and ten contained a smaller number of inhabitants.

Government and Laws.—The legislature consists of a senate

of 22 members, elected for two years, and a house of delegates of 57 members, elected for one year. Senators and delegates are paid $3 per day during the sessions, which are annnal and limited to 45 days. The executive officers are a governor (salary, $2000), secretary of State, treasurer, anditor and attorney-general, all of whom hold office for two years. State elections are held on the fonrth Thursday in October. The snpreme court consists of three judges, whose term of office is twelve years. There are eleven judicial districts, in each of which circnit conrts are held. A general law authorizes the formation of corporations, the capital of which "may not exceed one million dollars." The State is divided into 53 counties. For the year ending Sept. 30, 1874, the receipts into the treasnry were $695,951; disbnrsements, $657,183; balance in the treasury, $282,364.

History.—The Blue Ridge Monntains marked the western boundaries of settled Virginia until a century ago. Eastern Virginia possessed half a million of popnlation at that time, while West Virginia was yet an almost nnbroken wilderness. Settlements were made in Greenbrier and Berkeley connties before the close of the Revolntionary war. Soon afterward the tide of emigration passed over the mountains and rolled westward. The pioneer settlers were of English, Scotch and Irish descent, with a slight intermixture of Pennsylvania German blood. West Virginia began its separate history on the 13th of May, 1861, when delegates from 25 connties met in convention at Wheeling and passed resolntions opposing the ordinance of secession which Virginia had passed. On the 11th of June representatives from 40 connties assembled, and measnres were taken for the establishment of a provisional government. The first legislature assembled at Wheeling July 2. A constitntional convention met Nov. 26, and the Constitntion proposed was ratified by the people May 3, 1862. An act of Congress providing for the admission of West Virginia as a State was approved by the President on the 31st of December, 1862.

WISCONSIN.

Situation and Extent.—Wisconsin is bounded on the N. and N. E. by Lake Snperior and the State of Michigan, E. by Lake Michigan, S. by Illinois, S. W. and W. by Iowa and Minnesota. It is situated between latitudes 42° 30′ and 46° 58′ N. and longitudes 10° and 15° 30′ W. from Washington, or 87° and 92° 30′ W. from Greenwich. The length from north to south is 310 miles, the breadth from east to west 285 miles and the area 53,924 square miles, or 34,511,360 acres.

Physical Features.—*Surface.*—The general elevation of the snrface is from 600 to 1500 feet above the sea level. There are many hills, but no high monntains. Lake Superior is 627 feet and Lake Michigan 583 feet above the ocean. The eastern section of the State, between Lake Michigan and Lake Winnebago, is an undnlating plain, elevated 300 feet

above the lake. The *lead region* of the south-west has three general divisions—bottom-lands, bluffs and upland, or prairie. Precipitous slopes rise to a height of 200 or 300 feet, and above these is a gradual ascent of 600 or 700 feet. West Blue Mound, the highest summit, is elevated 1151 feet above Lake Michigan and 1734 feet above the ocean. North of the Wisconsin River are rolling prairies. The northern region is rough and broken and intersected by ridges of rocks, while the valleys contain many swamps and marshes. This section is drained in three directions—south toward the Mississippi, north toward Lake Superior and east toward Lake Michigan. *Rivers and Lakes.*—The Montreal and the Menomonee Rivers constitute a part of the boundary between North-eastern Wisconsin and Michigan. The former, flowing north-west into Lake Superior, has a descent of 800 feet in the course of 30 miles, and the latter falls 1050 feet as it flows south-east to Green Bay. Running through the centre of the State is the Wisconsin River, which rises near the northern boundary, and after a course of 600 miles, for 200 of which it is navigable, discharges its waters into the Mississippi. Other affluents of the Mississippi are the Bad Axe, Black, Chippewa and the St. Croix, which, with the Mississippi, marks the western boundary of Wisconsin and affords steamboat navigation for 350 miles. Emptying into Green Bay is the Fox River, 200 miles long; its principal tributary, the Wolf, has a length of 150 miles. Lake Michigan washes the eastern shore for 200 miles, and Lake Superior the northern shore for 100 miles. Within the limits of the State are a great number of lakes, varying in length from one to thirty miles, and abounding in fish. Lake Winnebago is 28 miles long and 10 wide. The "Four Lakes," in Dane county, celebrated for their beautiful scenery, are from 3½ to 9½ miles long and navigable for small steamboats. *Forests.*—Immense forests of white and Norway pine and of hard wood extend over the central and northern districts. The bottom-lands along the rivers are also thickly wooded. Among the forest trees are the ash, aspen, basswood, birch, black-walnut, cedar, elm, hemlock, hickory, linden, maple, poplar, spruce, sycamore and tamarac; 3,437,442 acres of woodland were contained in farms at the last census.

Soil and Climate.—The prairie soil is a vegetable mould of a dark-brown color, from one to eight feet deep and of great fertility. There is a large proportion of silex and but little clay. Good crops are raised from the cleared timber lands. Oak openings, where the undergrowth has been kept down by prairie-fires, afford some of the finest lands already prepared for the husbandman. The mineral region, in the north-west, is not well adapted for agriculture. Winter gives "bracing weather" in Wisconsin. The first fall of snow often remains upon the ground until spring. Rivers and lakes close about the middle of December and open the last of March or the first of April. Upon the isothermal charts the lines crossing

the State for the several seasons are: Spring, 40°–45°; summer, 65°–70°; autumn, 43°–50°; winter, 15°–25°; annual mean, 40°–47°. During the year ending Sept. 30, 1874, the mean temperature at La Crosse was 45.9°; minimum, 19° below zero; maximum, 101°; range, 120°; mean of the coldest month (January), 20.2°; warmest month (July), 77.1°. Upon 16 days the mercury fell below zero, and upon 27 days rose above 90°. At Milwaukee the mean for January was 23°, for July 71.5° and for the year 45.8°; the highest observed temperature was 98°. A frost, which badly damaged corn and other crops, was reported from 13 counties in various parts of the State on the 22d of August, 1875.

Agricultural Productions.—According to the last Federal census, Wisconsin contained 11,715,321 acres in farms, of which 5,899,343 acres were improved; average size of farms, 114 acres; value of farms, farm implements and live-stock, $359,964,310; value of productions, $78,027,032. In 1873 the number of acres devoted to Indian corn, wheat, rye, oats, barley, buckwheat, potatoes, tobacco and hay was 3,967,328, and the value of the crops $58,814,400. The live-stock in 1874 consisted of 335,300 horses, 4800 mules, 444,800 oxen and other cattle, 442,700 milch cows, 618,800 hogs and 1,187,600 sheep. Of the working population 54.53 per cent. were employed in agriculture.

Manufactures.—Manufacturing establishments were reported to the number of 7013; hands employed, 43,910; value of material, $45,851,266; value of products, $77,214,326. Among the leading industries in value were: Flouring-mill products, $16,035,734; lumber, planed and sawed, $15,744,989 (but three States produced more); carriages and wagons, $2,596,534; agricultural implements, $2,393,428; leather, curried, $2,360,347; leather, tanned, $2,013,093; clothing, $2,340,438; sash, doors and blinds, $1,852,370; malt liquors, $1,790,273; furniture, $1,542,356; iron, castings, $1,137,324; stoves, heaters and hollow-ware, $285,869; pig-iron, $737,268; woollen goods, $1,115,646; pig-lead, $514,402; and brick, $509,606.

Minerals and Mining.—The lead region of Wisconsin, contiguous to that of Illinois and Iowa, extends over 2200 square miles, an area larger than the State of Delaware. The first mention of lead in this region was made by Captain Carver, who visited the country in 1766. In the spring of 1828 lead was discovered at Mineral Point, and before autumn the district contained 8000 inhabitants. The Lake Superior copper region, "one of the richest in the world," extends into this State. Iron and zinc have also been found in large quantities. Marble and limestone furnish an abundance of building material. The product of 80 mines reported by the Federal census was $510,982.

Commerce and Navigation.—Great advantages for navigation are afforded to Wisconsin by the lakes and rivers which wash its bounda-

ries and penetrate its interior counties. Steamers have loaded their cargoes at the docks of Milwaukee and discharged them at the docks of Liverpool, thus showing the possibility of "direct trade with Europe." During the year ending June 30, 1874, the arrivals of steamers and sailing vessels at Milwaukee numbered 8447 and the departures 8331; amount of duty collected, $192,443. At Racine there were 1010 arrivals and the same number of departures. Belonging to the ports of Wisconsin were 339 vessels, of which 80 were steamers; 33 vessels were built during the year. Improvements are in progress for the purpose of connecting Lake Michigan with the Mississippi River through the Fox and Wisconsin Rivers. Congress appropriated $600,000 during 1873 and 1874, and the report of the chief engineer says that $750,000 can be profitably expended during the year ending June 30, 1876. Three millions of dollars is the estimated cost of the improvements.

Railroads.—The mileage of railroads in 1854 was 97; in 1874 it had increased to 2428; cost per mile, $35,717; total capital account, $97,417,063; receipts, $11,181,149; receipts per mile, $4255; receipts to an inhabitant, $9.40; net earnings, $3,823,607.

Public Institutions and Education.—The State Prison at Waupun, in Fond du Lac county, contains about 200 convicts, of whom more than 30 have been sentenced to imprisonment for life. Connected with the prison is a school, in which from 40 to 70 of the convicts receive instruction. A State Hospital for the Insane was established in 1860 on the banks of Lake Mendota, seven miles from Madison. Another asylum, near Lake Winnebago, was opened in April, 1873. The Institution for the Deaf and Dumb is at Delavan, and the Asylum for the Blind at Janesville. An Industrial School for boys is in successful operation at Waukesha. The school statistics for 1873–4 were: Number of children between the ages of four and twenty years, 436,001; attending school, 283,477; number of schools, 5540; teachers, 8903; school-houses, 4957; valuation of school-houses, $3,995,422; income for school purposes, $2,628,027; expenditures, $2,093,412; amount of school funds, $2,389,488. Four normal schools have been established for the training of teachers. There are 10 colleges and universities, of which Beloit ranks as the oldest. The University of Wisconsin has 26 instructors and more than 500 students; its property is valued at upward of $800,000. Professional instruction is afforded by three schools of theology, one school of law and one of science. In 1870 there were 2883 libraries, 190 periodicals (increased to 253, of which 19 were published daily, in 1875) and 1864 religious organizations, having 1466 edifices.

Cities and Towns.—*Madison*, the capital, is situated between Lakes Mendota and Monona, the largest of the celebrated "Four Lakes." The land on which the city stands was purchased for $1500 in 1836. In the

same year the territorial legislature passed an act locating the capital at this point. The village was "staked out" in February, 1837, and on the 4th day of July the corner-stone of the capitol was laid. The State Insane Asylum, the University of Wisconsin and the Soldiers' Orphans' Home are located here. Railroads radiate in six directions. Seven periodicals are published, of which two are issued daily. The library of the State Historical Society contains 60,000 volumes, and there are three other public libraries. Population, 9176 in 1870, and about 11,000 in 1875. *Milwaukee*, the commercial metropolis of the State, is situated on both sides of the Milwaukee River, upon the western shore of Lake Michigan. Its harbor is one of the best upon the lakes, and the shipping business is very extensive and constantly increasing. Grain, flour, lumber and pork are the leading articles of shipment. Five railroads concentrate the produce of the surrounding country at the docks of Milwaukee. Among the manufactories are iron-works, founderies, machine-shops, flouring-mills, breweries, tanneries, woollen-mills, boiler-shops, etc. Twenty-nine periodicals are published, of which nine are issued daily; four dailies and four weeklies are printed in the German language. The first settlement was made in 1835. In 1838 the population was 700; in 1846, 9655; in 1870, 71,440, and in 1875 (State census), 101,049. *Fond du Lac*, at the southern extremity of Lake Winnebago, has steamboat connection with Green Bay, and railroads radiate in five directions. The city contains 45 mills and factories, 16 churches and 4 newspaper offices. Population estimated at 20,000; in 1870 it was 12,764. *Oshkosh*, upon the western shore of Lake Winnebago, at the mouth of the Fox River, carries on a mercantile and manufacturing business of $10,000,000 a year. It is the seat of an Asylum for the Insane, which was erected at an expense of $600,000. There are 19 churches and 4 newspapers. Population, 12,663 in 1870, and about 15,000 in 1875. *Racine* has a commodious harbor upon Lake Michigan, and is an important port of shipment for grain and other produce. One manufacturing establishment carries on a business of $1,500,000 annually. Population, 9880 in 1870, and about 15,000 in 1875. *La Crosse*, at the mouth of the river of the same name, is the most important city of Wisconsin upon the Mississippi. It has eight newspapers, of which two are issued daily. Population about 10,000; in 1870, 7785. *Janesville*, on Rock River, at the junction of two railroads, is an important and growing town, having 3 newspapers and 11 churches. Population, 8789. Other leading towns are Watertown (7550), Sheboygan (5310), Mineral Point (4825), Beloit (4396), Kenosha (4309), Ripon (4119), Portage (3945) and Prairie du Chien (3661). The last named is one of the oldest towns in the State, and in 1766 contained about 300 families and houses "well built after the Indian fashion."

Growth in Population.—The number of inhabitants in 1840

was 30,945; in 1850, 305,391; in 1860, 775,881; in 1870, 1,054,670. The rate of increase between 1840 and 1850 was 886.2 per cent., a rapidity of growth which was never equalled in any of the United States, with a single exception [see MINNESOTA, page 286]. Wisconsin ranked last in population in 1840, while in 1870 22 of the States contained a smaller number of inhabitants. The foreign-born numbered 364,499 and the natives 690,171, of whom 450,272 were born in Wisconsin and 239,899 had come in from other States. New York supplied 105,697; Ohio, 23,164; Pennsylvania, 21,358; Vermont, 16,421; Illinois, 12,234; Massachusetts, 10,403. The density of population was 19.56 to a square mile.

Government and Laws.—The legislative authority is vested in a senate of 33 members, elected for two years, and an assembly of 100 members, chosen annually. The executive and administrative officers are a governor, lieutenant-governor, secretary of State and an attorney-general, all of whom hold office for a term of two years. The judicial power is vested in a supreme court, circuit courts, courts of probate and justices of the peace. Three judges constitute the supreme court. Judges of probate are chosen for each county and justices of the peace for each town. Capital punishment was abolished in 1852. At the expiration of 20 years, during which time 71 had been sentenced to the Penitentiary for life, of whom 36 remained, Gov. Washburn said, "No State in the Union can boast greater exemption from crime than Wisconsin." The State is entitled to 8 representatives in Congress. In 1874 the value of taxable property was $346,476,464.

History.—An agent of the Canadian government first visited this region in the summer of 1639. On the 14th of June, 1671, the French took formal possession of the countries "which are bounded on the one side by the Northern and Western Seas and on the other by the South Sea, including all its length and breadth, in the name of the most high, most mighty and most redoubtable monarch Louis the Fourteenth of the Christian name, King of France and Navarre." Marquette and Joliet reached Green Bay May 13, 1673. They crossed from the Fox to the Wisconsin River and sailed down it to the Mississippi, which they discovered June 17. The French jurisdiction was surrendered to Great Britain by the treaty of Paris Feb. 10, 1763. By the ordinance of July 13, 1787, all the territory north-west of the Ohio was organized. About the year 1809 the first saw- and grist-mill was built. Wisconsin became a part of the Territory of Michigan Oct. 16, 1818, was organized as a separate Territory April 20, 1836, and on the 29th of May, 1848, received admission into the Union as the twenty-ninth State. The name is derived from the Wisconsin River, which near its head is called, in the Chippewa dialect, "Wees-konsan," signifying "gathering of the waters."

THE DISTRICT OF COLUMBIA.

Situation and Extent.—The District of Columbia, which contains the capital of the United States, is situated upon the north bank of the Potomac River, 295 miles from the Atlantic Ocean. It is separated from Virginia by the river, and is bounded upon three sides by Maryland. The Observatory, from which longitude is determined for the United States, is in latitude 38° 53′ 38″ N. and longitude 77° 3′ 6″ W. from Greenwich. The District is ten miles in length, six miles in average breadth and contains an area of 64 square miles, or 40,960 acres. From the Potomac the ground rises into low hills, affording fine sites for buildings. Observatory Hill is 96 feet and Capitol Hill 90 feet above the river. Rock Creek, the Anacostia, or Eastern Branch, and the Tiber are small streams which discharge their waters into the Potomac.

Climate.—For a considerable portion of the year the climate is so delightful as to constitute one of the great attractions of residence. During the year ending September 30, 1874, the mean temperature was 55.8°, which was very nearly the same as at San Francisco (55.5°). The mean for the coldest month (February) was 36.4°, and for the warmest month (July) 78.4°; upon the coldest day (January 18) the thermometer indicated 9°, and upon the hottest (June 9) 102.5°. The mercury fell to the freezing point upon 87 days and rose to 90° upon 34 days, while a temperature of above 100° was suffered upon 3 days. The isothermal lines crossing the District are: Spring, 55°; summer, 75°; autumn, 55°; winter, 35°; annual mean, 55°.

Agriculture and Manufactures.—The Federal census reported 11,677 acres in farms, of which 8266 acres were improved; average size of farms, 56 acres; value of farms and farm implements, $3,839,680; value of productions, including betterments, etc., $319,517; of market-garden products, $112,034; of orchard products, $6781. The District contained 6029 horses and 1801 neat cattle. Manufacturing establishments were reported to the number of 952; hands employed, 4685; value of products, $9,292,173, of which $1,541,886 was credited to the flour-mills and $688,603 to printing and publishing.

Commerce and Navigation.—At the close of the fiscal year June 30, 1874, there were belonging to the District, of which Georgetown is the port of entry, 472 vessels, of 28,196.5 tons; the value of imports was $173 and of exports $1610. Twenty-seven vessels were built, including 17 canal-boats. The Chesapeake and Ohio Canal extends to Cumberland, Md., 180 miles; for its construction and repair $13,943,278 have been expended. Three railroads enter the District, the statistics of which are combined with those of Maryland.

Public Institutions and Education.—Among the leading

charitable institutions are the Government Hospital for the Insane, Columbia Institution for the Deaf and Dumb, National Soldiers' Home, National Soldiers' and Sailors' Orphans' Asylum, Washington City Asylum and Columbia Hospital. Congress passed a compulsory school act in 1864. The school population in 1873 was 31,671; pupils in public schools, 16,770; in private schools, 6759; teachers, 271; value of public school property, $1,005,407; expenditures, $298,281. There are five colleges (one of which is for deaf mutes), two schools of theology, four of law and four of medicine. The Smithsonian Institution, "for the increase and diffusion of knowledge among men," was founded by James Smithson, of England. Its grounds occupy 52½ acres, and the building has a length of 447 feet. The Naval Observatory contains one of the largest equatorial telescopes in the world, with a lens 26 inches in diameter. At the time of the last census there were 696 libraries, of which 127 were other than private. The Library of Congress contains 270,000 volumes and 55,000 pamphlets. There were 111 religious organizations, having 112 edifices; and 23 periodicals, of which 3 were issued daily; 5 dailies and 27 periodicals of all kinds were issued in 1875.

Population.—The number of inhabitants at successive decennial periods has been as follows: In 1800, 14,093; in 1810, 24,023; in 1820, 33,039; in 1830, 39,834; in 1840, 43,712; in 1850, 51,687; in 1860, 75,080; and in 1870, 131,700 (an increase of 75.41 per cent.). Four of the States and all of the other Territories contained a smaller population. There were 2057.81 persons to a square mile. The number of foreign-born was 16,254 and of native-born 115,446, of whom 52,340 were natives of the District and 63,106 had come in from other parts of the Union.

The National Capital.—*Washington* is situated 226 miles from New York and 1203 miles from New Orleans. It is laid out with rectangular streets, which are crossed obliquely by avenues bearing the names of the States. These avenues are 21 in number and have a width of from 120 to 160 feet. The principal avenues centre at the *Capitol*, which is the most imposing building in the United States. It has a length of 751 feet, a depth of 324 feet and a height, to the top of the statue upon its dome, of 307½ feet. More than 3½ acres of ground are covered by the structure, which was erected at a cost of $13,000,000. The weight of the iron dome is 8,000,000 pounds. The *Executive Mansion*, or "White House," is 170 feet in length and 86 feet in depth. The Treasury Department building is 582 feet long, 300 feet wide and cost $6,000,000. The Patent Office, 406½ feet long and 275 feet wide, cost $2,700,000. Other offices of the Department of the Interior are in this building. The State, War and Navy Departments have occupied buildings of inferior appearance, but a new edifice for their accommodation was begun in 1871, which is 567 feet in length and 342 feet in width; it is built of Maine granite and designed

to be absolutely fireproof. Among the other noteworthy buildings are the General Post-Office, Smithsonian Institution, Corcoran Art Gallery, Arsenal, City Hall and the Naval Observatory. The population of the city, which was 109,199 in 1870, was estimated in 1875 at 150,000. *Georgetown* (population, 11,384) is separated from Washington by Rock Creek, which is spanned by four bridges. Steamers run regularly to Baltimore, Norfolk, Philadelphia, New York and Boston. It is the seat of Georgetown College, which was founded in 1791. The city was incorporated Dec. 25, 1789. Outside the old limits of Washington and Georgetown are several small villages within the county of Washington, which is coextensive with the District of Columbia. The number of inhabitants in these districts was 11,117.

Government and Laws.—The District of Columbia is under the immediate jurisdiction of the Congress of the United States. On the 21st of February, 1871, an act was passed establishing a local government for municipal purposes throughout the District. The city charters of Washington and Georgetown were repealed and their municipal government vested in that of the District. Legislative power is vested in an assembly, which consists of a council of 11 members and a house of delegates of 22 members, chosen annually by the people. A governor and secretary and five judges of the supreme court are appointed by the President and paid by the United States. Minor administrative officers and justices of the peace are chosen by the local authorities. Between the years 1797 and 1870 more than $42,000,000 was paid by the general government for the expenses of the District. The amount so paid for the year 1873 was $2,864,889.92; for 1874, $1,079,614.76; and for the fiscal year ending June 30, 1875, $2,044,299.98.

History.—It was not until after long discussion that the site of the national capital was fixed upon the banks of the Potomac. A tract of territory ten miles square was ceded to the United States by Maryland and Virginia in 1788 and 1789. The corner-stone of the District was fixed April 15, 1791, and on the 18th of September, 1793, the corner-stone of the Capitol was laid by George Washington. In June, 1800, the executive offices were removed from Philadelphia to the new capital. On the 14th of August, 1814, the public buildings were burned by the British. The Capitol was rebuilt, and completed in 1825. That portion of the District south of the Potomac was ceded back to Virginia July 9, 1846. In 1851 the corner-stone of the Capitol extensions was laid, and on the 12th of December, 1863, the new dome was crowned with the statue of Freedom.

THE TERRITORIES.

ALASKA.

Situation and Extent.—The (unorganized) Territory of Alaska is bounded on the N. by the Polar Sea, E. by British America, S. by the Pacific Ocean and W. by the Sea of Kamtschatka (or Behring Sea) and Behring Strait. Including the Aleutian Islands, it extends from latitude 51° 30′ to 72° 55′ N. and from longitude 53° 2′ to 110° 34′ W. from Washington, or from 130° 2′ to 187° 34′ W. (172° 26 E.) from Greenwich. The continental portion is included between the parallels of 130° 2′ and 169° 59′ W. longitude. The area of the Territory is estimated at 577,390 square miles, or 369,529,600 acres.

Physical Features.—*Mountains.*—The St. Elias range (a continuation of the Coast Mountains of California) stretches along the coast to the extremity of the peninsula of Alaska. At longitude 142° W. it blends with a chain of mountains coming from the north and east, in the Alaskan Range. North of this is a broken and rocky country, beyond which are elevated table-lands of immense extent. Bordering the Arctic Ocean is a low range of hills. Sixty-one volcanic peaks are known, of which only ten are now active. The most elevated summits are Mount St. Elias (the height of which, by the measurement of the Coast Survey, is 14,970 feet, though formerly reckoned at from 16,000 to 17,900 feet), Fairweather (14,700 feet), Crillon (13,500 feet), Iliamna Volcano (12,066 feet), Goryalaya (11,270 feet), Mount Calder (9000 feet) and the Peaks of the Romanzoff (from 5000 to 8000 feet). *Rivers and Adjacent Waters.*—The principal rivers emptying into the Pacific, beginning at the south, are the Chilkáht, the Alsekh, Atna or Copper and the Suchitna, "supposed to be several hundred miles long." Discharging their waters into the Behring Sea are the Kuskoqúim, from 500 to 600 miles long, and the Yukon, "the Missouri of the north-west," which is 2000 miles long and sometimes has a width of 20 miles; steamboats drawing four feet of water can ascend it for 1513 miles, and for much of the distance the water has a depth of two fathoms or more. There are several large lakes in the interior; Lake Iliamna is half the size of Lake Ontario. Prince William Sound has a surface area of 2500 square miles. Cook's Inlet is 160 miles long and 65 miles in its greatest breadth. Behring Sea extends from the Aleutian Islands northward to Behring Strait; Bristol Bay and Norton Sound are its eastern prolongations. Above the strait is the Frozen Sea. On some parts of the coast the tides rise and fall 30 feet; the greatest range observed at Sitka is 13 feet. *Islands.*—As many as 1100 islands are con-

tained in the Alexander Archipelago, which includes Sitka and extends down the coast to British Columbia. South of the peninsula of Alaska is the Kadiak Archipelago, the largest island of which (Kadiak) has a length of 85 miles. The Catharina Archipelago sweeps westward almost to the Sea of Kamtschatka. The most important of its several groups are the Aleutian Islands, which extend in a regular curve for 875 miles. In the Arctic Ocean a large island, or extent of land, has been discovered, but not yet explored. *Forests.*—The coast region as far north as Prince William Sound is densely wooded, and the trees grow to a gigantic size. The Sitka spruce attains a height of from 180 to 200 feet. The yellow cedar, which is the most valuable timber, sometimes has a diameter of 8 feet. Willows are very abundant. Other common trees are the hemlock, balsam fir, scrub-pine, arbor vitæ, larch, poplar, red and white alder, etc. Very few trees grow on the Aleutian Islands. Birch is the only hard wood seen in the Yukon district.

Soil and Climate.—Travellers have observed that Alaska is naturally divided into three districts, differing greatly from each other in soil and climate. (1.) The Yukon district extends from the Polar Sea as far south as the Alaskan Mountains. Much of the soil is described by Dall as "a rich alluvial, composed of very fine sand, mud and vegetable matter brought down by the river, and forming deposits of indefinite depth." In some localities sand and in others clay predominates. Below the depth of three or four feet there is usually a layer of frozen soil six or eight feet in thickness. In summer the thermometer at Fort Yukon, which is north of the Arctic Circle, has indicated a temperature of 112°; and spirit thermometers graduated up to 120° have burst under the scorching rays of the sun. The lowest temperature noted was 70° *below zero* (making a range of 182 degrees), and the annual mean was 16.92°. (2.) The Aleutian district has in many localities a rich soil of vegetable mould and dark-colored clay. The climate is moist and warm, and said to be as mild as in the Highlands of Scotland. Observations continued for five years showed a mean temperature of 37.8°; the maximum was 77° and the minimum zero. The great warm current of the North Pacific (the "Black Stream" of the Japanese) washes these coasts, and greatly modifies the climate. (3.) The Sitkan district extends southward from the Peninsula of Alaska to the British line. The soil is a vegetable mould upon a subsoil of dark clay or gravel. At Sitka the mean temperature for 12 years was 42.9°. For the winter the average was 33° (which was warmer than Philadelphia), but the highest mean for a summer month was 58.3°, in July. The greatest rainfall was 95 inches, and the average 83.39 inches. Upon 245 days of the year there was rain, hail, snow or heavy fog.

Productions.—*Agriculture.*—At Sitka attempts have been made to cultivate fruit, but without success. Turnips attain to a very large size;

potatoes are small and watery. Cranberries grow wild, and berries of many kinds are very abundant. At Kadiak beans, peas, beets, lettuce, parsnips, cabbages, radishes, carrots and other vegetables have been raised. Grass grows to a height of two feet. Barley has matured at Fort Yukon. One hundred and eighteen species of indigenous plants have been catalogued. *Minerals.*—Of these not much is known. Coal, iron, bismuth and petroleum are among the minerals discovered. Specimens of pure copper have been brought in by the Indians from Copper River. *Fur-bearing Animals.*—Alaska has thus far been valued chiefly for the number of animals whose skins brought a high price in the market. Among these animals are the sea-otter, beaver, fur-seal, fox (black and silver, cross, red, white and blue), marten, wolverine, wolf, mink, bear, muskrat, hair-seal and wildcat, or lynx. Six million arctic seal-skins have been taken since 1841. The length of a full-sized skin of the sea-otter is six feet, and its width about four feet. These are the Russian sables, worth $100 or more each. *Fisheries.*—The Report of the Coast Survey says: "As the banks of Newfoundland have been to the trade of the Atlantic, so will the greater banks of Alaska be to the Pacific." The cod and salmon are innumerable. Herring are so plentiful that "an Indian will fill his canoe in twenty minutes." Alaska also furnishes good whaling-ground.

Commerce and Navigation.—During the fiscal year ending June 30, 1874, 12 vessels were registered; 36 vessels entered and 33 cleared; the value of exports was $9381; of imports, $1167.

Population and Towns.—The number of inhabitants in 1870 was 29,097, of whom 26,843 were born in the Territory, 483 were Russians and 350 natives of the United States and other foreigners not Russians. Not more than 1300 were civilized; 1421 were half-breeds. *Sitka*, or New Archangel, the capital, is situated on an island 1296 miles north of San Francisco. It contains about 1000 inhabitants and 150 buildings, of which the principal are the Governor's House, Hospital, Barracks and Greek Church. *St. Paul*, on Kadiak Island, contains about 100 houses. There are many small villages of Aleutians.

History.—Vitus Behring, a Russian navigator, visited the country on the 18th of July, 1741. Captain Cook sailed up the inlet called by his name in 1788. In 1799 the Russian American Fur Company was organized. Its charter expired in 1862. Before the laying of the Atlantic cable explorations were made to determine the feasibility of a telegraph line over land and across Behring Strait. On the 28th of May, 1867, a treaty was ratified by which the whole Territory was transferred to the United States for the sum of $7,200,000, and on the 18th of October, in the same year, it was formally surrendered to the United States commissioner. The name Alaska is a corruption of a Russian word, the root-meaning of which is "a great country."

ARIZONA.

Situation and Extent.—Arizona is bounded on the N. by Utah, E. by New Mexico, S. by Mexico and W. by California and Nevada, from the latter of which it is separated by the Colorado River. The Territory is situated between latitudes 31° and 37° N. and longitudes 32° and 37° 40′ W. from Washington, or 109° and 114° 40′ W. from Greenwich. Its greatest length from north to south is about 400 miles and its greatest breadth from east to west 325 miles. The area is 113,916 square miles, or 72,906,240 acres.

Physical Features.—*Surface.*—There are four distinctly-marked varieties of surface. (1.) The river-bottoms, of which the most extensive are in the valleys of the Santa Cruz, San Pedro and Gila Rivers. (2.) Dry plains, of vast extent, containing very little vegetation and elevated but a few hundred feet above the sea-level. The region south of the Gila and east of the San Pedro is of this character. (3.) Elevated plateaus or table-lands, called *mesas*, at a height of from 3000 to 8000 feet above the sea, with occasional peaks rising 2500 feet higher. These platcaus cover the central and north-eastern portions of the territory. (4.) The mountain ranges, which run nearly parallel from the north-west to the south-east, with deep valleys between. The highest peaks are Mount San Francisco, more than 11,000 feet high, and Bill Williams Mount. South of these are the Juniper Mountains, a chain of low, rolling hills. Eastward are the Black Hills, rugged and steep, and a favorite stronghold of the hostile Indians. *Forests.*—The delta of the Colorado and the Gila has a dense growth of timber. Extensive pine woods cover the grand Colorado plateau, alternating with open parks. The Juniper Mountains are thickly wooded, and this region has been styled "the Black Forest" country. Along the streams the cottonwood flourishes, and back of this grows the mesquit, palo verde and greasewood. The brown and grizzly bear and other wild animals are sometimes encountered, and there are many herds of deer and antelope. *Rivers.*—The Colorado River, which is more than 1100 miles long, is formed by the union in Utah of the Green River, rising in the mountains between Idaho and Wyoming, with the Grand River, rising in the Rocky Mountains near the centre of Colorado. Its principal branches are the Little Colorado, Bill Williams Creek and the Gila. The river flows through deep cañons, of which one, called the Grand Cañon, has a perpendicular wall fully 6000 feet in height. Steamers ascend the Colorado to Callville, more than 600 miles above its mouth. The Gila, rising in New Mexico, flows across the southern part of Arizona and empties into the Colorado 180 miles above its mouth. Flat-bottomed boats are able to pass up it for a considerable distance. All of Southern Arizona is drained through the tributaries of the Gila, of which the principal are the San

Domiugo, San Pedro aud Santa Cruz on the south, and the Bonito, San Carlos, Salt and Verde Rivers on the north. Many of the streams run through deep ravines, which are called box cañons, from the steepness of their sides.

Soil and Climate.—The river valleys contain a considerable quantity of fertile, alluvial land, which by irrigation is made to produce bountiful crops. South of the Gila is a sterile waste, with only scant vegetation. On the plateaus of the central and northern sections grass grows luxuriantly, and the immeuse herds of cattle ueed no artificial shelter during the winter, as frosts are rare and snow seldom falls. A United States exploriug expedition, sent out in 1871, experienced variations of temperature ranging from 8° to 109°. The mercury is said to rise sometimes to a height of 130° Fahreuheit. The raiuy season extends from Juue to September, but the quautity of water falling is very small. The rainfall of 1857 in Lower Arizoua was less thau oue-third of an inch, but in the following year it reached 8.57 inches. Upon the isothermal charts the lines of mean temperature for Arizona are: Spring, 45°–70°; summer, 70°–90°; autumn, 45°–75°; wiuter, 30°–55°; annual mean, 50°–70°.

Agriculture and Manufactures.—The number of acres of land in farms at the last census was 21,807, of which 14,585 acres were improved; average size of farms, 127 acres; value of farms, $161,340; of implements, $20,105; of live-stock, $143,996; total value, $325,441; value of farm productions, $277,998; value of productious per acre of improved ground, $19.06, which was greater than the production of any of the Atlantic States except New Jersey. Corn yields from 30 to 60 bushels per acre, and wheat from 20 to 40 bushels. A crop of wheat and of coru can be raised upon the same ground in one season. All the cereals and vegetables of the Northern States may be grown, and in additiou figs, oranges and lemons thrive well. The number of manufacturing establishments was 18; hands employed, 84; capital, $150,700; wages, $45,580; materials, $110,090; value of products, $185,410.

Railroads.—The Texas Pacific Compauy has been chartered, and received large grants of land to build a railroad along the 32d parallel of latitude, from Marshall, Texas, to San Diego, Califoruia. The Atlantic and Pacific Railroad, running from St. Louis westward, will cross Arizona at about the 35th parallel.

Mines and Mining.—Arizoua shares iu the mineral wealth with which the territory west of the Rocky Mountains is so abundantly eudowed. Rich mines were opened by the Mexicans, and abaudoned on account of the enmity of the fierce Apaches. Gold, silver, copper, lead, iron, platiuum and quicksilver have been found in considerable quantities. There are very extensive deposits of salt and beds of gypsum and coal. The bullion product from 1869 to 1873 was estimated at $3,225,000.

Education.—The governor of the Territory is *ex officio* superintendent of public instruction. Many of the children are of Mexican parentage and speak the Spanish language. A general school law was passed in 1871, and amended in 1873. In July, 1874, the superintendent wrote: "We now have free schools in every district in the Territory." The educational statistics for 1873–4 were: Number of children between 6 and 21 years of age, 1660; value of school-houses and furniture, $6247; average monthly salary of teachers, $100; receipts for school purposes, $13,832.53. The number of libraries at the last census was 6; volumes, 2000; church organizations, 4; newspapers, 1. There were 4 newspapers in 1875.

Population and Towns.—The civilized population in 1870 was 9658, of whom 5809 were foreign born and 3849 native. Of the latter, 1240 were born in the Territory, and immigrants had come in from every State of the Union except Nevada. There were 20 Chinese and 32,050 Indians sustaining tribal relations, making the total number of inhabitants 41,710. *Tucson* is the capital and principal town. It contains a population of 3224. *Arizona City* (population, 1144) is admirably situated for trade, at the junction of the Colorado and Gila Rivers, nearly opposite Fort Yuma. *Prescott* (population, 668) is situated on the great central plateau, 6000 feet above the sea. It was formerly the capital, and is the head-quarters of the army for Arizona. A daily newspaper is published, for which the terms of subscription are $20 per year.

Government and Laws.—The governor and other executive officers and the judges of the supreme court are appointed by the President of the United States, as is the case with all the Territories. A salary of $2500 is paid to the governor and judges. Sessions of the supreme court are held annually at the capital. The people elect members for the legislature and a delegate to Congress.

History.—Arizona is a part of the Territory obtained from Mexico by "the Gadsden Purchase," in 1853, for ten millions of dollars. As early as 1526 Spanish explorers crossed the country. In 1687 a Jesuit missionary from Sonora explored the region about the Gila River, and soon after missions were established. A map drawn in 1757 laid down more than 40 towns and villages; the accompanying notes give more than a hundred gold and silver mines which were worked by the Spaniards. Solid silver to the value of $40,000 adorned the altar of the church of San Xavier del Bac. Many of the priests and settlers were massacred by the Apaches, and the country was finally abandoned. The banks of the Gila show the ruins of houses and fortifications built of stone in the most substantial manner, and indicating a large population. Arizona was organized as a Territory Feb. 24, 1863. Great losses were inflicted upon the early settlers by the hostile Indians, and the development of the country has been very seriously retarded.

COLORADO.

Situation and Extent.—Colorado is bounded on the N. by Wyoming Territory and Nebraska, E. by Nebraska and Kansas, S. by the Indian Territory and New Mexico and W. by Utah. It lies between latitudes 37° and 41° N. and longitudes 25° and 32° W. from Washington, or 102° and 109° W. from Greenwich. The Territory is 375 miles long from east to west, 275 miles wide from north to south, and contains an area of 104,500 square miles, or 66,880,000 acres.

Physical Features.—*Surface.*—There are three natural subdivisions, of nearly equal size. The eastern section, called "the plains," is a high, rolling plateau, from 4000 to 6000 feet above the sea-level, well watered by mountain streams and scantily timbered. The western section slopes away toward the Great Interior Basin. Near the centre are the Rocky Mountains, about 125 miles broad at the base and consisting of parallel and cross ranges which enclose four immense natural parks, each of them as large as some of the smaller States. The North Park contains 2500 square miles and is elevated 9000 feet above the sea-level. Middle Park, 93 miles long and 60 miles wide, has an area of 5600 square miles. Its drainage is westward into the Colorado. In this park are found hot sulphur springs, the waters of which are considered beneficial to invalids. Surrounding this basin on all sides are lofty mountains. Long's Peak, 14,270 feet high, has on one side an almost perpendicular precipice 3000 feet high. Gray's Peak reaches an altitude of 14,340 feet. South Park, 40 miles long, contains 1200 square miles. From the summit of Mount Lincoln (14,296 feet high) more than 200 peaks upward of 12,000 feet in height can be seen, while 50 peaks reach an altitude of 14,000 feet. San Luis Park, partly in New Mexico, is larger than all the other three combined, and is better adapted for agriculture on account of its southern exposure and lower altitude. Other conspicuous mountain peaks are Pike's Peak (14,147 feet), Mount Evans (14,330 feet), Torrey's (14,336 feet), Princeton (14,199 feet). The Mountain of the Holy Cross (13,478 feet) takes its name from huge fissures in the form of a cross, which are filled with snow and can be seen for 80 miles. Cathedral Rocks are a noteworthy feature in "the Garden of the Gods." *Forests and Wild Animals.*—Hard woods, such as the oak, maple, elm, birch, etc., are almost unknown. The principal trees are the cedar, cottonwood, fir, hemlock, pine, spruce, larch, box-elder, quaking-aspen, etc. The timber line on the mountains is at an elevation of from 11,500 to 12,080 feet. Fires often sweep through the forests, and trees are prostrated by the heavy winds. Among the wild animals are the antelope, badger, bear, buffalo, cougar, deer, elk, fox, hare, lynx, mink, marten, prairie-dog and wildcat. Game-birds are plenty. *Rivers.*—The Arkansas River, at its head, in Tennessee Pass, near Mount

Lincoln, has an elevation of 10,176 feet above the ocean. It flows through Colorado for 500 miles, and is swelled by numerous tributaries, of which Purgatory River and Sandy Fork are the most important. The South Platte, with its branches, drains the north-east section. The Southern Basin is drained by the Rio Grande and the Western by the Colorado, which empties into the Gulf of California.

Soil and Climate.—The plains and parks are fertile along the water-courses. Irrigation brings good crops even on the arid plains, but large sections are unprofitable for cultivation. There is much of excellent grazing country. Often a heavy snow comes late in October and closes up the mountain passes for the winter. Sometimes these storms delay until February. The snowfall on the last of March has been three feet at Denver and five feet among the mountains. Six feet fell during a single storm on Snake River the latter part of October. A snowfall of three inches was reported September 20, 1875. The average rainfall at Denver is 12 inches; in Middle Park, 18 inches; on the mountains, 25 inches. During two years at Denver the mercury ranged from 18° below zero to 99° above; annual mean, 48.19°. The isothermal lines are: Spring, 40°–50°; summer, 60°–72°; autumn, 45°–55°; winter, 20°–30°; annual mean, 40°–50°. The exhilarating mountain air and the magnificent scenery are making Colorado a favorite resort for invalids and summer tourists.

Agricultural Productions.—Wheat, barley, oats, potatoes, turnips, peas and the hardier garden vegetables thrive at an elevation of 7500 feet. Most of them can be raised as high up as 9000 feet, but they are in danger from frost. At the last census there were 320,346 acres in farms; improved, 95,594 acres; average size of farms, 184 acres; value of farms, farm implements and live-stock, $6,529,454; of products, $2,335,106; number of persons engaged in agriculture, 6462.

Manufactures.—In 1870 there were 256 establishments, employing 876 hands; value of materials, $1,593,280; of products, $2,852,820. The principal industries were: Flour, 17 establishments, products, $593,506; lumber, 29 establishments, products, $380,260; quartz milled, 15 establishments, products, $769,324.

Minerals and Mining.—The geological report catalogues 150 different minerals, of which a few are: Agate, amethyst, beryl, chalcedony, jasper, onyx, opal, sardonyx, gold, silver, iron, lead, sulphur, zinc and petroleum. Gold-mining began in 1858–9; the gold-hunters flocked to Pike's Peak as ten years before they did to California. Colorado Gulch yielded $75 a day to each man. One lode yielded $1000 per day. Four millions of dollars in gold were taken out of the placers in California Gulch. Towns grew up in a day. Then the reaction came. The miners were all eager to "sell out." An embryo city which boasted of 2000 in-

habitants retained but a single family. The yield of gold in 13 years was estimated at $60,000,000. The shipments of gold and silver for the three years 1870–72 were valued at $12,999,465.

Railroads.—The railroad statistics for 1874 were: Miles of railroad, 687; capital stock, $11,014,300; total capital account, $19,543,414; cost per mile, $44,685; receipts, $1,041,063; receipts per mile, $2392; receipts to an inhabitant, $10.41; net earnings, $523,713.

Education.—There was not a public-school building in the Territory in 1869. In 1870 Black Hawk, Central City and Denver each erected fine buildings; the aggregate cost of the three was $115,000. The returns of 1873–4 reported the value of the school-houses as $260,185; receipts for school purposes, $257,558; teachers, 241; school population, 14,417, of whom 7456 are enrolled in schools. Jarvis Hall, at Golden City, is designed as the foundation for a future university. It has a divinity school and a school of mines. The Rocky Mountain University, to be located at Denver, has been chartered.

Population.—Sixteen years ago Colorado was a part of the "Great American Desert," which was not supposed to be habitable. The first cabin was put up at Denver in 1858. In 1860 the number of inhabitants was 34,277; in 1870, 39,864. The subsequent increase has been very rapid.

Cities and Towns.—*Denver*, the capital, is situated 5197 feet above the sea-level. Five distinct railroads centre here. Four daily newspapers are published. Seven millions of dollars in gold have been received at the branch mint. There are establishments for the manufacture of flour, woollen goods, iron, carriages, etc. Population in 1870, 4759; in 1875 (estimated), 15,000. The other leading towns, with the estimated population in 1875, were: Central City (3000), Georgetown (3500), Colorado Springs (2500), Golden City (2000), Black Hawk (1500).

Government and Laws.—The executive and judicial officers are appointed by the President of the United States. The judges receive a salary of $4500 each. The supreme court consists of 3 judges, each of whom also holds terms of the district court. The legislature, which meets biennially, consists of a council of 13 members and a house of representatives of 26 members.

History.—Vasquez Coronado, from Mexico, entered the present Territory of Colorado in 1540. United States exploring expeditions were conducted by Lieut. Pike in 1806, by Col. Long in 1820, and by Col. John C. Fremont in 1842. Only Mexicans and Spaniards, with a few American hunters, trappers and traders, inhabited the Territory previous to the discovery of gold, in 1858. A territorial government was organized Feb. 28, 1861. Congress passed an act in 1875 enabling Colorado to form a State

government. An election, to be held Oct. 25, 1875, was ordered by the governor, to choose delegates to a constitutional convention, which was to meet December 20 of the same year. This was preparatory to taking advantage of the opportunity given by the above act for admission into the Union.

DAKOTA.

Situation and Extent.—The Territory of Dakota is bounded on the N. by British America, E. by Minnesota and Iowa, S. by Nebraska and W. by Wyoming and Montana. It is situated between latitudes 42° 30′ and 49° N. and longitudes 19° 40′ and 27° W. from Washington, or 96° 20′ and 104° W. from Greenwich. The length from north to south is 450 miles, the breadth from east to west 350 miles and the area 150,932 square miles, or 96,596,480 acres.

Physical Features.—*Surface.*—In the north-east is the valley of the Red River of the North, which is a level meadow covered with tall grass and an occasional fringe of trees. West of this valley treeless plains stretch out in long rolling swells. Gradually the land ascends, and is broken by rounded ridges and hillocks covered with the short "bunch" or "buffalo" grass, while the streams run through deep, narrow valleys. Two elevated plateaus are noteworthy features of the country: (1.) The Coteau des Prairies extends southward and divides, the eastern arm passing into South-western Minnesota and the western stretching to the Dakota or James River valley; this plateau, 200 miles long and from 15 to 20 miles wide, has an elevation of 2000 feet above the sea. (2.) The Coteau du Missouri, which stretches along the valley of the Missouri River to the mouth of the Yellowstone and passes over into British America, is from 30 to 50 miles wide and from 1500 to 2000 feet above the sea. In the south-west are the Bad Lands (Mauvaises Terres), a deep valley 90 miles long, 30 miles broad and 300 feet below the level of the surrounding country. Fossil remains of many species of animals now extinct are found in great abundance. To the west of the Bad Lands are the Black Hills, extending over into Wyoming, and occupying an area 100 miles long and from 50 to 60 miles wide. Some of the peaks attain a height of 6750 feet. *Timber.*—We quote from the report of Prof. Hayden: "It [Dakota] possesses, probably, the smallest amount of timber of any State [or Territory] in the Union, the forests bearing a ratio of not more than 3 to 5 per cent. to the entire area." Cottonwood, which is planted extensively by the farmers, affords plenty of fuel in five years from the seed. Pine forests cover large tracts in the Black Hills. Along the rivers there is a growth of cottonwood, whitewood, poplar, ash, maple, elm, oak, black-walnut, pine and willow. The black bear, wolf, wolverine, otter, marten and mink are common, and immense herds of buffalo, antelope, deer and elk range the vast plains. *Rivers and Lakes.*—The Red River of the North forms the eastern boundary of Da-

kota for 250 miles [see MINNESOTA]. Eight rivers of considerable size flow into it from the west—viz., the Wild Rice, Cheyenne, Elm, Goose, Turtle, Big Salt, Park and Pembina. The Missouri River traverses the Territory from the north-west to the south-east and forms a part of the southern boundary. It is navigable into Montana, near the boundaries of which Territory it receives its principal affluent, the Yellowstone. Other tributaries upon the west are the Little Missouri, Big Knife, Cannon Ball, Big Cheyenne, White and Niobrara. Among the tributaries upon the east are the Dakota, or James River, which flows nearly south for 400 miles and empties into the Missouri below Yankton; the Vermilion, 150 miles long; and the Big Sioux, which forms a portion of the eastern boundary. Devil's Lake, or Minniwakan, 1467 feet above the sea-level, 40 miles long and 10 miles wide, is the largest of a number of salt lakes. Other lakes and ponds, varying in size from one to ten thousand acres, are scattered over the Territory in vast numbers.

Soil and Climate.—Along the Missouri River bottoms the soil is a rich, dark, sandy loam, with a large mixture of vegetable mould. Grass yields three tons to the acre. The uplands are especially adapted for wheat, 30 bushels to the acre being an ordinary yield; and large crops of corn, oats and vegetables are produced. Through the Red River valley, 200 miles long and from 40 to 60 wide, the predominant soil is a black, sandy loam, from two to four feet deep, resting upon a subsoil of yellow clay, which sometimes extends to a depth of ten feet. "All west of the James River is a district not sufficiently supplied with rain," says the report before quoted. During a period of five years, from 1867 to 1871, the average rainfall was 14.09 inches, which is less than half the amount falling in Minnesota, Iowa or Eastern Nebraska. The average depth of the snow, which remains from the middle of November to March, is 16 inches. The variations of temperature are extremely great, as is shown by the report of the United States Signal Service Bureau for the year ending September 30, 1874. At Yankton the mercury fell below zero upon 21 days and rose to 90° upon 32 days; minimum, —20°; maximum, 101°; yearly mean, 46.4°. At Fort Sully the yearly mean was 46.2°, the minimum —27° and the maximum 106°. Upon 31 days the temperature was below zero, upon 68 days above 90° and *upon* 19 *days above* 100 *degrees.* Pembina, in the extreme north-east, near the borders of British America, had a lower mean temperature (34.40°) than that of any signal station in the United States [see MINNESOTA]. *The mercury fell to zero upon* 94 *days*—viz., 10 in November, 21 in December, 25 in January, 20 in February, 16 in March and 2 in April—while upon 4 days it rose to 90°. The minimum was 44 degrees below zero and the maximum 96°, a range of 140 degrees. Upon the isothermal charts the lines crossing Dakota are: Spring, 40°–50°; summer, 67°–74°; autumn, 43°–50°; winter, 10°–25°; annual

mean, 40°–50°. The cold in the north seems less severe because of the absence of high winds.

Agriculture and Manufactures.—The census of 1870 reported 302,376 acres in farms, of which 42,645 were improved; average size of farms, 176 acres; value, $2,085,265; value of productions, including betterments, etc., $495,657. Seventy bushels of corn, 50 of wheat, 75 of oats and 500 of potatoes have been grown to the acre. Little attention had been given to manufactures. The number of establishments reported was 17; hands employed, 91; capital, $79,200; value of products, $178,570.

Minerals and Mining.—The mineral resources of Dakota are yet a subject of investigation and of considerable dispute. Prof. Janney, of the United States Exploring Expedition, in an official report, dated July 31, 1875, says: "It is remarkable that so few valuable minerals have been found in the [Black] Hills, although the country is overrun with miners, and everything in the shape of a rock in any way peculiar in its appearance is brought to me for identification; but I have not yet seen any mineral containing lead, copper or silver; only iron pyrites, iron ores resulting from its decomposition, mispickel, graphite, black tourmaline, rose quartz, garnets and staurotide as mineralogical curiosities."

Railroads.—The number of miles of railroad reported in 1874 was 275; total capital account, $2,700,000; cost per mile, $43,548; total receipts, $158,147; receipts per mile, $2592; receipts to an inhabitant, $6.06; net earnings, $67,946.

Education.—Up to the year 1865 there were no public schools in the Territory. A school law was passed in 1867 and amended in 1871 and 1873. District schools are free to all children between the ages of 5 and 21 years. In 1873 there were 200 school districts, 100 teachers and 4006 children attending the public schools; expenditure for school purposes, $21,748. The Territory contained, when the last census was taken, 19 libraries, 17 religious organizations, having 10 edifices, and 3 newspapers. In 1875 the newspapers had increased to 14, all of which were published weekly.

Population and Towns.—The number of inhabitants in 1870 was 14,181, of whom 4815 were of foreign and 9366 of native birth; 2088 were born in the Territory and 7278 in other parts of the Union. There were 30,200 Indians, mostly Sioux, for whose accommodation 35,000,000 of acres had been set apart in various reservations. Seven hundred Russian Mennonites arrived at Castle Garden in September, 1875, on their way to Dakota. *Yankton*, the capital and chief city of the Territory, is situated on the north side of the Missouri River. The streets cross each other at right angles. Douglass Avenue and Broadway are 120 feet wide. Three weekly newspapers are published. The city was first settled in 1859.

Population 737 in 1870, and estimated at 3000 in 1875. Other leading towns are Elk Point (775), Jefferson (616), Brule Creek (600) and Civil Bend (570).

Government and Laws.—The executive and judicial officers are appointed by the President of the United States. The legislature, which holds biennial sessions, consists of 13 councillors and 26 representatives. Ten per cent. is the legal rate of interest, but 2 per cent. a month, by special agreement, is lawful.

History.—Dakota, which formed a part of the Louisiana purchase of 1803, was organized as a Territory March 2, 1861. The first permanent settlements were made in 1859. In the summer of 1863 the settlers suffered greatly from hostile bands of Sioux. Five children of one family were massacred in the absence of their parents. "Every cabin on the frontier in those days was a small fortress well stocked with guns, revolvers and ammunition." Gen. Sully, with 2000 troops, routed the savages at Whitestone in June, and since then they have been held in check. The first legislature met on the 17th of March, 1862. Large discoveries of gold in the Black Hills were reported during 1874–5, and several expeditions were organized for this new El Dorado. Negotiations carried on with the chiefs who visited Washington in the summer of 1875 were unsuccessful; but past experience teaches that the extinguishment of the Indian title to the lands is only a question of a little time.

IDAHO.

Situation and Extent.—The Territory of Idaho is bounded on the N. by British Columbia, N. E. and E. by Montana and Wyoming, S. by Utah and Nevada and W. by Oregon and Washington Territory. It is situated between latitudes 41° and 49° N. and longitudes 32° 30′ and 40° 10′ W. from Washington, or 109° 30′ and 117° 10′ W. from Greenwich. Idaho has the general form of a right-angled triangle, with a base 430 miles long and a perpendicular of 490 miles, while the Rocky and Bitter Root Mountains, which constitute the eastern boundary, are the hypotenuse. The area is 86,294 square miles, or 55,628,160 acres.

Physical Features.—*Surface.*—Spurs from the great Rocky Mountain chain extend across the Territory. Between these are broad table-lands, having an elevation of from 2000 to 8500 feet above the sea-level. There are many well-watered valleys, and the streams run through cañons sometimes a thousand feet in depth. Conspicuous among the mountain peaks are the "shark teeth summits" of the Grand Tetons, of which the most northerly, named Mount Hayden, has an altitude of 13,833 feet. Near its summit is a circular enclosure, supposed to have been built by the Indians. If this supposition is correct, the savages of the West were less superstitious than their brethren in the East [see NEW HAMPSHIRE]. A

lake of perpetual ice is found at the height of 10,300 feet. Mount Moran (12,800 feet high), Mount Leidy (11,300 feet), Mount Sheridan (10,343 feet) and the Three Buttes are prominent landmarks. *Rivers and Lakes.*—A small district in the south-east is drained through the Bear River into Great Salt Lake. The Snake River, or Lewis Fork, and Clarke's Fork drain all the rest of the Territory into the Columbia. The sources of the Snake River are in the Rocky Mountains, not far from the Yellowstone Lake; it receives numerous tributaries, among which are the Malade, Boisé, Salmon and Clearwater. Navigation is impeded by rapids and shallows. There are three great falls, over the highest of which the waters are precipitated 200 feet. Lakes are numerous, and some of them of large extent; the area covered by these bodies of water is estimated at 575,000 acres. Several groups of hot springs, varying in temperature from 88° to 158°, have been discovered. *Forests.*—The northern and eastern sections are well timbered. There are immense forests of pine, cedar and fir. It has been estimated that 7,500,000 acres are covered with timber. The basin of the Snake River is destitute of trees. Among the animals are the grizzly bear, black bear, red squirrel, striped squirrel, yellow-footed marmot, American beaver, yellow-haired porcupine, etc.

Soil and Climate.—Less than one-third of the total area is suited for agriculture. One quarter of it is sterile and produces only wild sage and buffalo-grass; but much of this might be made fertile by irrigation. The river basins contain a rich soil, and good grazing-lands are abundant. It is seldom necessary to use hay for the wintering of cattle in the valleys, while the mountains afford a perpetual arctic climate. The isothermal lines crossing the territory are: Spring, 45°–52°; summer, 60°–70°; autumn, 45°–52°; winter, 20°–30°; year, 40°–50°.

Agriculture and Manufactures.—The number of acres in farms, by the last census, was 77,139, of which 26,603 acres were improved; average size of farms, 186 acres; value of farms, farm implements and live-stock, $1,072,735; value of farm productions, $687,797. There were 101 manufacturing establishments, which employed 265 hands; value of materials, $691,785; of products, $1,047,624. Milled quartz constituted more than one-half of the amount ($523,100).

Mines and Mining.—The bullion product of Idaho for nine years, from 1864 to 1873, was $55,275,000. In 1869 the product was $7,000,000, and in 1872, $2,695,870. The diminution has been explained by saying that mining is less profitable than in the other Territories on account of the high price of tools, provisions and labor, resulting from the deficiency of means for transportation. A railroad is the remedy prescribed for these troubles. "Two-thirds of the claims now worked are in the hands of the Chinese." Eight millions of acres are designated as "mineral lands." An immense ledge of isinglass was discovered in the fall of 1875.

Education.—In 1874 the number of children was 3233; enrolled in schools, 2196; average attendance, 891; school-houses, 41; schools, 51; expenditnres, $27,181.60; expenditnre per pupil of average attendance, $30.50. Steps were taken in June, 1874, for the organization of a university. The Federal census reported 43 libraries, containing 10,625 volnmes, and 15 religious organizations, with 12 edifices. In 1875 five periodicals were pnblished, of which one was issued daily at Silver City.

Population and Towns.—In 1870 the number of inhabitants was 14,999, of whom 7885 were foreign born (4274 Chinese); 946 were born in Idaho, and settlers to the nnmber of 6168 had come in from all of the 49 States and Territories, with the exception of Alaska and Arizona. Popnlation to a sqnare mile 0.17. The principal towns are *Boisé City*, the capital, Idaho City, Malade City, Silver City and Lewiston.

Government and Laws.—A governor and secretary are appointed by the President for a term of four years. Other administrative officers are chosen by the people. The legislature consists of a council of 13 members and a house of representatives of 26 members, elected biennially. The supreme conrt consists of three judges appointed by the President. There are three jndicial districts, in which conrts are held by a judge of the supreme court. Probate courts are established for each connty. The Territory of Idaho, which included parts of Montana and Wyoming, was established by act of Congress upon the 3d of March, 1863.

THE INDIAN TERRITORY.

Situation and Extent.—The Indian Territory (nnorganized, and more properly designated as the Indian *Country*) is bonnded on the N. by Colorado and Kansas, E. by Missouri and Arkansas, S. by Texas and W. by Texas and New Mexico. It is situated between latitudes 33° 35′ and 37° N. and longitudes 17° 20′ and 26° W. from Washington, or 94° 20′ and 103° W. from Greenwich. The greatest length from east to west is 465 miles, the greatest breadth 285 miles and the area 68,991 square miles, or 44,154,240 acres.

Physical Features.—*Surface.*—The Ozark and Washita Mountains extend from Arkansas into the Territory, and the Witchita Mountains give a rugged character to the south-west. Dome Rock and the Antelope Buttes are considerable elevations in the west, bnt there are no high mountains. The mean elevation of the Territory is 1250 feet above the sea. *Rivers.*—The Arkansas and the Red Rivers, with their nnmerous tributaries, drain the conntry. Flowing into the Arkansas are the Neosho, Verdigris, Chicaskia, Big Salt, Red Fork and Canadian Rivers. The Red River constitutes the sonthern boundary. Its principal affinents are the Kiamishi, Boggy, False Washita and North Fork. *Forests.*—Along the

river-bottoms there is a plentiful growth of trees, and the north-eastern section is heavily wooded. An extensive forest, called the "Cross Timbers," extends over into Texas. The trees most common are the ash, elm, cottonwood, oak, yellow pine, pecan, sycamore and walnut. Game is abundant, and vast herds of buffalo and wild horses roam over the plains.

Soil and Climate.—In the north-east much of the land is rocky and unproductive, and in the central and western sections the plains are sterile. Fertile soils are found in the valleys. The isothermal lines crossing the Territory are: Spring, 55°–60°; summer, 75°–80°; autumn, 55°–60°; winter, 35°–40°; annual mean, 55°–60°. At Fort Gibson, during the year ending Sept. 30, 1874, the mean temperature was 60.3°; mean of the coldest month (January), 39.5°; of the warmest month (August), 86.1°; minimum, 11°; maximum, 106°. Upon 88 days the mercury rose to 90°, and upon 21 days the temperature was *at or above* 100 *degrees.*

Agriculture.—The statistics of the Indian Territory are not given in the United States census, but are reported by the Commissioner of Indian Affairs. In 1873, 217,790 acres of land were under cultivation. Indian corn, wheat, oats, potatoes, sorghum, tobacco, beans, rice and cotton were cultivated, and the value of the crops was more than $4,000,000. The live-stock numbered 212,155 horses, 322,354 cattle, 13,100 sheep and 430,455 swine, having a total value of $9,408,178. Lumber was sawed to the amount of 3,930,468 feet, and the value of furs sold was $193,560. No statistics of manufactures were given.

Education.—Each of the civilized tribes provides by law for the support of public schools, which are of three grades—primary, intermediate and grammar. Two high-school buildings, belonging to the Cherokees, cost $80,000. The number of schools in the Territory at the last report was 176; teachers, 216; scholars, 4769; value of school fund (including the orphan and asylum fund), $2,909,113. There are three weekly newspapers, published in the Cherokee, Choctaw and English languages. More than 7000 communicants are connected with the various religious denominations.

Population and Towns.—The population in 1873 was 72,468, of whom 17,217 were Cherokees, 16,000 Choctaws, 6000 Chickasaws, 13,000 Creeks, 2438 Seminoles, 1219 Quapaws and 16,594 of other tribes. Included in the last number were Osages, Pottawattomies, Delawares, Shawnees, Kioways, Comanches, Apaches and the representatives of many other tribes. About one-half of the Indians are nomadic and the other half settled upon seventeen reservations, which contain 44,154,240 acres. There are about 2500 whites and 6500 negroes in the Territory. The principal towns are *Talequah*, the capital of the Cherokee Nation; Tishemingo, the capital of the Chickasaws; Armstrong Academy, the capital of the Choctaws; Okmulkee, the capital of the Creeks; We-wo-ka, the capital

of the Seminoles; New Boggy and Caddo. About one-fifteenth of the houses are frame buildings; the rest are built mostly of logs. Twenty-eight United States post-offices have been established. The Territory contained 279 miles of railroad in 1874.

Government and History.—An agent is appointed for each of the tribes, under the superintendence of the Commissioner of Indian Affairs. Cases in which a white man is concerned are within the jurisdiction of the United States courts for Arkansas. Each of the civilized tribes has a regularly-constituted government, with a written constitution and code of laws. The "Principal Chief of the Cherokee Nation" is elected for a term of four years. Many of the Indians desire an organized territorial government, and a constitution was framed in 1870, but it did not receive the approval of Congress. By an act passed June 4, 1834, "all that part of the United States west of the Mississippi, and not within the States of Missouri and Louisiana or the Territory of Arkansas," was included in the Indian Country. That magnificent domain of the aborigines was greater than the combined area of all the States then organized. A single generation passed, and the census of 1870 enumerated seven States whose area, taken singly, exceeded all that was left of the "Indian Country."

MONTANA.

Situation and Extent.—The Territory of Montana is bounded on the N. by British America, E. by Dakota, S. by Wyoming and S. W. and W. by Idaho. It is situated between latitudes 44° 10′ and 49° N. and longitudes 27° and 39° W. from Washington, or 104° and 116° W. from Greenwich. The extreme length from east to west is 550 miles, the breadth 280 miles and the area 143,776 square miles, or 92,016,640 acres.

Physical Features.—*Surface.*—The Territory is naturally divided by its physical conformation into four sections. (1.) The north-western district, between the Rocky and Bitter Root Mountains, is broken and rugged, and intersected by many mountain spurs. (2.) The northern district, extending for 350 miles along the Milk and Missouri Rivers, is an open plain, destitute of trees, and descending toward the east at the rate of five feet to the mile. (3.) The south-eastern section is more rolling and better wooded. (4.) The south-western section, containing 15,000 square miles, is mountainous and covered with dense forests. Among the highest mountains are Electric Peak (10,992 feet), Emigrant Peak (10,629), Mount Delano (10,200) and Mount Blackmore (10,134). Three-fifths of the Territory is a broad open plain, and the mean elevation is 3950 feet. *Rivers.*—Clark's Fork of the Columbia and its tributaries, the Bitter Root, Hell Gate, Big Blackfoot and Jocko Rivers, drain 30,000 square miles of North-western Montana into the Pacific, while the remaining four-fifths of the Territory belong to the Great Central Basin of the Mississippi,

and are drained through the Missouri and its branches. The head streams of the Missouri River, of which the Gallatin, Madison and Jefferson are the most important, have their sources in the Rocky Mountains of Montana, near the boundary line of Wyoming and Idaho. Steamboats ascend the Missouri as far as Fort Benton. Its principal tributaries are the Marias and Milk Rivers, on the north, and the Muscle Shell and Yellowstone (navigable for 400 miles) on the south. There are numerous hot springs and geysers in the south-west, belonging to the general system, which is described more fully elsewhere [see WYOMING]. *Forests.*—Evergreen trees, such as the pine, fir, spruce, cedar, hemlock, etc., are most common in the dense forests of the mountain district, while the river valleys contain the cottonwood, willow, alder, aspen, etc. The elevation of the timber line is from 8800 to 9600 feet. Large tracts in the east are almost entirely destitute of wood. The buffalo, antelope, grizzly bear and other wild animals are often seen.

Soil and Climate.—The great plains are sterile, owing to a deficiency of moisture; many of the valleys are fertile, and excellent grazing-land is found on the lower mountain slopes. Very great and sudden changes are characteristic of the climate. At Fort Ellis the thermometer has marked 53 *degrees below zero.* At Deer Lodge, during the month of March, 1867, the mercury stood below zero upon 28 out of the 31 mornings. The lowest temperature observed was —34°. The mean for January, 1868, was —1.5°, and for January, 1869, 20.4°; annual mean for the two years, 40.7°; rainfall, 16.5 inches. Forty-eight snow-storms have been counted in a season, but the greatest depth of snow was only 12 inches. At Fort Shaw the mean temperature is 47.33°. During the year ending Sept. 30, 1874, the mean temperature at Fort Benton was 42.5°. Upon 50 days the mercury fell below zero, and the lowest point reached was —34°. The interval between frosts was 142 days (from April 22 to Sept. 12). At Virginia City the minimum was —18°, and the mercury reached 90° upon only one day. The isothermal lines crossing the Territory are: Spring, 40°–50°; summer, 65°–73°; autumn, 45°; winter, 15°–25°; annual mean, 40°–45°.

Agriculture and Manufactures.—The climate is rather cold for Indian corn, but grain and vegetables, such as beans, beets, carrots, cucumbers, melons, onions, potatoes, squashes, tomatoes, turnips, etc., mature well, and small fruits are very abundant. The census of 1870 reported 851 farms, containing 139,537 acres, of which 84,674 acres were improved; average size of farms, 164 acres; value of farms, farm implements and live-stock, $2,693,324; value of productions, $1,676,660. In 1874 the live-stock included 19,905 horses, 104,777 cattle, 1606 mules and 10,597 sheep. The number of manufacturing establishments was 201; hands employed, 701; value of materials, $1,316,331; value of products, $2,494,511.

The leading industries in value were: Quartz, milled, $801,873; lumber, $428,957; flouring-mill products, $365,859.

Mines and Mining.—Gold was discovered as early as 1852, but mining did not begin until late in 1861. The bullion product in 1862 was $500,000, and in 1866 it reached $16,500,000. For thirteen years, ending with 1875, the total product was estimated at $120,901,386. Montana ranked next to Nevada and California in the production of the precious metals. Copper is mined in considerable quantities. Iron, lead, antimony, zinc, arsenic and manganese have been discovered. Beds of bituminous coal exist in several localities; and granite, limestone, slate and other building-stones are abundant.

Education.—The territorial superintendent of education is required "to keep his office at some place where there is a post-office." The school districts are larger than many an eastern county. A general school law was passed in 1874. In 1873–4 the number of children of school age (5 to 21 years) was 3517; attending school, 2030; number of schools, 101; receipts for educational purposes, $33,162. In 1870 there were in the Territory 141 libraries, containing 19,790 volumes, and 15 religious organizations, having 11 edifices. Seven newspapers, two of which were issued daily, were published in 1875.

Population and Towns.—The census of 1870 reported 20,595 inhabitants, of whom 1693 were born in the Territory, 10,933 had come in from other parts of the Union and 7979 from foreign countries; population to a square mile, 0.14. *Helena*, which was made the capital in 1875, is the principal town. It is situated in the centre of a rich mining district, and contains several factories and churches. One of its two daily newspapers is mailed to subscribers at $24 a year. The population of the town in 1870 was 3106; there were 641 Chinese and 3 Indians. Other principal towns are Virginia City (867), the former capital, Deer Lodge City (788), Fort Shaw (473), Diamond City (460), Fort Benton (367) and Radersburg (311). The tribal Indians numbered 22,486 in 1874, including Crows, Blackfeet, Sioux, Piegans and representatives of ten other tribes.

Government and History.—A governor and secretary and three judges of the supreme court are appointed by the President. The legislature consists of a council of 13 members and an assembly of 26 members, elected for two years. Judicial authority is vested in a supreme court, district courts, probate courts (for each county) and justices of the peace. A territorial Penitentiary has been established at Deer Lodge City. In the spring of 1863, 18 steamers passed up the Missouri, bearing passengers and freight to the mining districts of Montana. The Territory of Montana was established by act of Congress May 26, 1864. On the 17th of February, 1873, 2000 square miles from Dakotah were annexed.

NEW MEXICO.

Situation and Extent.—The Territory of New Mexico is bounded on the N. by Colorado, on the E. by the Indian Territory and Texas, S. by Texas and Mexico and W. by Arizona. It is situated between latitudes 31° 20′ and 37° N. and longitudes 26° and 32° W. from Washington, or 103° and 109° W. from Greenwich. The greatest length from north to south is 395 miles, the greatest breadth 355 miles and the area 121,201 square miles, or 77,568,640 acres.

Physical Features.—*Surface.*—The mean elevation of the Territory is 5400 feet above the sea. In the south-east is the Llano Estacado, extending from Texas, which is an immense plateau scantily clothed with vegetation, and having an altitude of from 3200 to 4700 feet. Stretching through the centre of the Territory from north to south are a series of broken mountain ranges, with elevations varying from 6000 to 10,000 feet. About 150 miles to the westward is the parallel range of the Sierra Madre, which constitutes the water-shed between the Atlantic and the Pacific. Between these mountain chains is the great valley of the Rio Grande, which Hayden regards "as one great volcanic crater" comprehending many smaller craters. The streams have cut cañons sometimes 1000 feet in depth and with almost perpendicular walls. The sands and marls are fashioned in unique forms resembling the "Bad Lands" of Dakota. *Rivers.*—The north-eastern district is drained by the Canadian River, a branch of the Arkansas; the south-eastern by the Rio Pecos, which unites with the Rio Grande in Texas; the central by the Rio Grande del Norte, which rises in the mountains of Colorado; the south-western by the Rio de los Mimbres and the Gila; and the north-western by the head-streams of the Little Colorado and the San Juan. There are several groups of hot springs having a temperature of from 80° to 140°. *Forests.*—Extensive forests of evergreens, such as the pine, fir, cedar, spruce and hemlock, cover the mountains; the piñon or nut pine monopolizes large tracts of the foothills; cottonwood, sycamore, oak and walnut trees are abundant along the water-courses. There is an almost entire absence of timber upon the plains. Among the wild animals are the bear, wolf, coyote, lynx, beaver, hare, deer, antelope, elk, buffalo, etc. Wild turkeys, prairie chickens, ducks and other game-birds are plenty.

Soil and Climate.—Very fertile soils are found in the valleys and upon some of the table-lands; but with the exception of a few favored localities, irrigation is necessary for the production of good crops throughout the whole of New Mexico. Excellent grazing-lands are found in almost every section, and cattle need no artificial shelter during the winter. The isothermal lines crossing the territory are: Spring, 45°–65°; summer, 60°–80°; autumn, 45°–65°; winter, 25°–50°; annual mean, 45°–65°. Those lines indicate an unusual range of temperature [see PHYSICAL

GEOGRAPHY]. The mean temperature for a series of years at Santa Fé, which has an elevation of 7047 feet, was 50.6°. During the year ending September 30, 1874, the mean was 48.8°; maximum, 89°; minimum, 2°; mean for the warmest month (July), 71.1°; for the coldest month (December), 25.8°. The first frost of the season (32°) was October 18, 1873, and the last frost May 10, 1874, an interval of 205 days.

Agriculture and Manufactures.—The valleys of the Rio Grande, Pecos and other rivers are occupied by Mexicans, who raise large crops even with their very rude methods of cultivation. All the common grains, vegetables and fruits thrive. The census of 1870 reported 4480 farms, averaging 186 acres each (4 had more than 1000 acres each), and containing in the aggregate 833,549 acres, of which 143,007 acres were improved; value of farms, $2,260,139; of farm implements, $121,114; of live-stock, $2,389,157; total, $4,770,410; value of productions, $1,905,060. The number of manufacturing establishments was 182; hands employed, 427; value of materials, $880,957; value of products, $1,489,868, of which the most important items were flouring-mill products, $581,040, and quartz, milled, $399,712.

Mineral Resources.—Spaniards and Mexicans discovered the mineral treasures of this region at a very early date. The sides of the mountains about Taos are covered with "diggings" where Mexicans washed out gold with melted snow. Gold has been found of such purity as to yield $19 per ounce. The value of a single boulder upon Lone Mountain was estimated at from $1000 to $2000. The mining interests have been greatly depressed from Indian hostilities and other causes, and the bullion product is only about half a million dollars a year. Copper, lead, platinum, zinc, iron, coal, marble, gypsum, etc., exist in considerable quantities.

Education.—An act for the establishment of public schools was passed in 1855, but met with such opposition from the people that it was repealed the following year. In 1871 a new school law was passed, and the number of schools increased from 44 in 1870 to 164 (of which 26 were private) in 1874. The number of pupils at the latter date was 7102 and the number of teachers 196. Of the public schools 111 were taught in the Spanish language. The number of libraries in 1870 was 116; religious organizations, 158, having 152 edifices (of which 149 belonged to the Roman Catholics); periodicals, 5. In 1875 the number of periodicals was 12, of which 6 were published in both the Spanish and English languages, and 1 was issued daily.

Population and Towns.—The number of inhabitants in 1850 was 61,547; in 1860, 93,516; in 1870, 91,874 (a decrease due to the setting off of portions of the Territory to Arizona and Colorado); 83,175 were born in the Territory; 3079 had come in from other parts of the

Union, 3913 from Mexico and 1707 from other foreign countries. The density of population was 0.76 to a square mile. The tribal Indians (not included in the above enumeration) numbered 25,268 in 1874, belonging principally to the Apaches, Utes and Pueblos. The principal towns are Santa Fé, the capital (population in 1870, 4765), Las Vegas (1730), Albuquerque (1307), Mora (1083), Embudo (576), San José (492) and Silver City (estimated at 1000 in 1875). No railroads have yet entered the Territory, although several have been projected.

Government and Laws.—As in other Territories, the governor, secretary and judges of the supreme court are appointed by the President, with the consent of the Senate, for a term of four years. Other administrative officers are chosen by the territorial legislature, which consists of a council of 12 members and a house of representatives of 26 members. The supreme court consists of three judges, who also preside singly over the district courts. Probate courts are established for each county.

History.—As early as the year 1537 Spanish explorers had entered New Mexico, and before the close of the century formal possession was taken of the country in the name of Spain. Humboldt thought that New Mexico was the first abiding-place of the Aztecs, as they migrated southward. Remarkable ruins testify to the advancement in civilization of the early inhabitants. On the Rio Chaco are the remains of a structure 700 feet in circumference and with solid walls of gray sandstone, four stories high, yet standing. The country was ceded to the United States by Mexico in 1848, and the "Gadsden purchase" (which also included parts of Arizona, Colorado and Nevada) was added in 1854. A territorial government was organized September 9, 1850.

UTAH.

Situation and Extent.—The Territory of Utah is bounded on the N. and N. E. by Idaho and Wyoming, E. by Colorado, S. by Arizona and W. by Nevada. It is situated between latitudes 37° and 42° N. and longitudes 32° and 37° W. from Washington, or 109° and 114° W. from Greenwich. The length from north to south is about 350 miles, the breadth 280 miles, and the area 84,476 square miles, or 53,264,640 acres.

Physical Features.—*Surface.*—Utah is in the Great Interior Basin, and its surface has a mean elevation of 5100 feet above the sea-level. Upon the north-eastern border are the Uintah Mountains, 7000 feet above the table-lands. The Wasatch Mountains extend through the centre of the Territory from north to south in a series of ridges and spurs with small valleys between. The principal mountain summits, with their elevations, are Mount Tohkwano (13,500 feet), Hayden Peak (13,500), Dawes Peak (13,300), Gilbert's Peak (13,250), the Twin Peaks (12,000), Belknap (11,894), Mount Baldy (11,730) and Lone Peak (10,713). The

Salt Lake Valley is a level basin, from 4200 to 4500 feet above tide-water and surrounded by mountains, of which the highest peaks are covered with perpetual snow. *Lakes and Rivers.*—Great Salt Lake, 100 miles long and 50 miles wide, is so salt that no fish can live in it. Flowing into it from the south is the River Jordan, which drains Lake Utah. Upon the north the Bear River from Idaho and other smaller streams discharge their waters into the lake, which has no visible outlet. The district east of the mountains is drained by the Green and Grand Rivers, which unite to form the Colorado. None of the streams of the Territory are navigable. There are several groups of hot springs, with a temperature ranging from 90° to 136°. *Forests.*—Upon the Uintah and Wasatch Mountains are heavy forests; the timber line is at the height of 11,000 feet. Among the trees most abundant are the fir, spruce, pine, cedar, maple, oak, mountain mahogany, quaking ash, etc. The Great Basin is almost destitute of wood, but trees planted upon the irrigated lands grow rapidly. The wild animals most common are the wolf, catamount, cougar, fox, mink, wolverine, beaver, hare, antelope, Rocky Mountain sheep, elk and deer.

Soil and Climate.—Much of the soil of the plains is alkaline and barren, producing nothing but the wild sage bush. Hardly one acre in fifty in its natural state will pay for cultivation, but an extensive system of irrigation has made the desert about Salt Lake City a garden. Formerly little rain fell from April to November, but summer showers are now said to be more frequent. Snow accumulates on the mountains to a depth of from 6 to 20 feet, and remains in sheltered places all the year round. The isothermal lines crossing the Territory are: Spring, 45°–50°; summer, 65°–80°; autumn, 45°–55°; winter, 25°–45°; annual mean, 45°–65°. At Salt Lake City the mean for July, 1874, was 78.2°; upon 31 days of the season the mercury reached 90°, and the maximum was 98°. The mean for December, at Corinne City, was 21.4 degrees.

Agriculture and Manufactures.—According to the census of 1870, the number of acres in farms was 148,361, of which 118,755 acres were improved; average size of farms, 30 acres; value of farms, farm implements and live-stock, $4,739,126; value of productions, $1,973,142. There were 533 manufacturing establishments, which employed 1534 hands, used materials valued at $1,238,252 and produced articles to the value of $2,343,019. Lumber and flour were among the leading items. Manufactures have increased very rapidly in the period since the census, and the above figures very inadequately represent the agricultural and manufacturing industries at that date.

Mines and Mining.—Metalliferous deposits were discovered as early as 1863, but the Mormon authorities discouraged mining, as being likely to bring in a "Gentile" population. The bullion product in 1871 was $2,300,000; in 1872, $2,445,284; in 1873, $3,055,444; and in 1874

about the same amount. The value of the lead product for two years was $1,205,203. Chemical analysis of ores taken from the Emma mine showed the presence of lead, sulphur, antimony, copper, zinc, manganese, iron, silver, alumina and magnesia. Belts of bituminous coal and large deposits of iron ore have been discovered.

Railroads.—In 1869 the first railroad was opened for travel. The Union Pacific railroad extends across the breadth of the Territory. In 1874 the mileage of railroads was 459; cost per mile, $31,947; total capital account, $9,165,000; receipts, $1,543,859; receipts per mile, $6831; receipts per inhabitant, $13.42; net earnings, $733,893.

Education.—The school statistics for 1873 were: School population (from 4 to 16 years of age), 27,725; scholars enrolled, 16,070; average attendance, 11,842; teachers, 355. A general school law was approved Feb. 20, 1874. The higher institutions of learning are the Deseret University, having 300 pupils in its primary and intermediate departments; St. Mark's School (Protestant Episcopal), with about the same number; the Rocky Mountain Conference Seminary; and Morgan College. The Federal census returned 133 libraries, containing 39,177 volumes, and 164 churches. In 1875 there were 9 periodicals, of which 5 were issued daily.

Population and Towns.—In 1850 the number of inhabitants was 11,380; in 1860, 40,273; and in 1870, 86,786, of whom 41,426 were born in the Territory, 14,658 had come in from other parts of the Union and 30,702 from foreign countries. Great Britain and Ireland contributed 20,772, Denmark 4957, Sweden 1790, China 445 and all Germany 358. It is a Mormon boast that 50 nationalities are represented among them. It would be a difficult problem in sociology to estimate the ratio of future increase, since "for a man to have twenty boys and girls in his house is a common fact." There were 1.03 persons to a square mile. About 130 towns and villages are contained in the Territory. *Salt Lake City*, the capital, is regularly laid out, with streets 100 feet wide and 4 miles long, crossing each other at right angles. Each square contains 10 acres, and is divided into 8 smaller squares. Streams of water, brought down from the mountains for irrigation, run through every street. The principal buildings are the Temple, Theatre and City Hall. Three daily and several weekly newspapers are published. Two railroads terminate at the city. The population in 1870 was 12,854. Among the other leading towns are Ogden (3127), Spanish Fork (1450), Brigham City (1315), Beaver City (1207) and Corinne City (783).

Government and History.—A governor, secretary and supreme court judges are appointed by the President; and there is a legislative body, consisting of 13 councillors and 26 representatives. The actual government has been very much in the hands of the Mormon hierarchy, whose members exercise authority in things temporal as well as spiritual.

The chief prophet is assisted by three councillors, twelve apostles and a large number of bishops. In July, 1847, the advance guard of Mormons, who had been driven from Nauvoo, Illinois, reached the Salt Lake Basin and founded the "City of the Saints." The journey across the plains proved a hard one; "every day there was a funeral," and eighty died out of a single train. Mexico then owned the territory, which was ceded to the United States in 1848. The revelation of polygamy was not adopted until Aug. 29, 1852. A territorial government was established for Utah Sept. 9, 1850. Application was made for admission into the Union as the State of Deseret in 1862, and again in 1872, but Congress refused the request.

WASHINGTON.

Situation and Extent.—The Territory of Washington is bounded on the N. by British Columbia, E. by Idaho, S. by Oregon and W. and N. W. by the Pacific Ocean, the Strait of Juan de Fuca and the Gulf of Georgia. It is situated between latitudes 45° 30′ and 49° N. and longitudes 40° 10′ and 47° 50′ W. from Washington, or 117° 10′ and 124° 50′ W. from Greenwich. The length from east to west is 350 miles, the breadth 230 miles and the area 69,944 square miles, or 44,796,160 acres.

Physical Features.—*Surface.*—The Cascade Mountains, extending north and south at the distance of 100 miles from the coast, separate the Territory into two unequal parts, known as Eastern and Western Washington. Eastern Washington is an immense rolling table-land, elevated from 1000 to 2000 feet above the sea-level and intersected by the Columbia River. The Blue Mountains extend across the south-eastern district. Western Washington contains three great basins—viz., those of the Columbia River, the Chehalis and Puget Sound. The latest measurements of the principal mountain peaks (which vary greatly from the former estimates) give the following results: Mount St. Helen's, 15,500 feet; Mount Rainier, 14,444; Chuchulum, 11,700; Mount Hood, 11,225; and Mount Baker, 10,760. Many of these peaks are extinct volcanoes. The mean elevation of the Territory is 1800 feet. *Rivers.*—The Columbia River enters near the north-east corner, takes a wide sweep to the west and constitutes the southern boundary of the Territory for 300 miles. Vessels ascend as far as Kettle Falls, but navigation is interrupted by frequent cascades. Lewis Fork, Clarke's Fork, the Okinagan and the Yakima are the principal affluents of the Columbia. Several small streams empty into the Gulf of Georgia and the Pacific. *Forests.*—About 20,000,000 acres are reckoned as timber land. "The finest forest growth in the world" extends from the Cascade Range to the coast. Trees are found 400 feet high and 14 feet in diameter. The yellow fir furnishes the strongest timber. Among other very common trees are the hemlock, spruce, white

cedar, tamarack, maple, white oak and ash. Eastern Washington contains little timber, except in the river valleys.

Soil and Climate.—An area of more than 40,000 square miles in Eastern Washington is sterile on account of the scanty rainfall. The Walla Walla district is favorable for grain and stock-raising. The Chehalis Valley has been called "the garden spot of Washington." There are large tracts of arable land in the valley of the Columbia and about Puget Sound. West of the Cascades there are but two seasons, the wet (lasting from November to May) and the dry; the average annual rainfall is 53 inches. East of the Cascade Range the climate resembles that of the interior of Pennsylvania. The isothermal lines crossing the Territory are: Spring, 45°–50°; summer, 60°–70°; autumn, 45°–52°; winter, 25°–40°; annual mean, 45°–52°.

Agriculture and Manufactures.—The number of acres of farm land in 1870 was 649,139, of which 192,016 acres were improved; average size of farms, 208 acres; value of farms, farm implements and live-stock, $6,371,235; value of productions, $2,111,902. There were 269 manufacturing establishments, which employed 1026 hands; value of materials used, $1,435,128; value of products, $2,851,052. Lumber was planed and sawed to the value of $1,872,310. The value of the bullion product is about $200,000 per year.

Commerce and Navigation.—During the year ending June 30, 1874, the value of imports through Puget Sound (the only customs district) was $24,566; value of domestic exports, $604,339; vessels entered, 336; cleared, 387; vessels belonging to the district, 101, of which 25 were steamers; vessels built during the year, 17. Several vessels were employed in the cod-, mackerel-, salmon- and oyster-fisheries. Up to 1875, 110 miles of railroad had been completed.

Education.—A compulsory school law is in force. The number of schools in 1873–4 was 196; pupils, 5928; persons of school age, 9949. The University of Washington Territory was incorporated in January, 1862, and located at Seattle. The general government gave 46,080 acres of land for its endowment. The Federal census reported 102 libraries, containing 33,362 volumes, 47 religious organizations, with 36 edifices, and 14 newspapers. In 1875 there were 16 periodicals, of which 2 were dailies.

Population and Towns.—The number of inhabitants in 1860 was 11,594; in 1870, 23,955, of whom 6932 were born in the Territory, 11,999 had come in from other parts of the Union and 5024 from foreign countries. In addition to those enumerated above, there were 234 Chinese and 14,796 Indians, making the aggregate population 37,432. The density of population was 0.34 to a square mile. *Olympia*, the capital, is situated at the head of Puget Sound, 645 miles north of San Francisco. It has 6 churches and 5 newspaper offices. Population 1203 in 1870, and

estimated at 1600 in 1875. Other leading towns are Walla Walla (1394), Seattle (1107), Fort Colville (587), Port Gamble (326), Steilacoom (314) and Vancouver.

Government and History.—The President appoints a governor, secretary and supreme court judges, as in the other Territories. Legislative authority is vested in a council of 9 members and a house of representatives of 30 members. Ten per cent. is the legal rate of interest Washington Territory was orgauized from a part of Oregon, March 2, 1853.

WYOMING.

Situation and Extent.—The Territory of Wyoming is bounded on the N. by Montana, E. by Dakota and Nebraska, S. by Colorado and Utah aud W. by Utah, Idaho and Montana. It is situated betweeu latitudes 41° and 45° N. and lougitudes 27° and 34° W. from Washington, or 104° aud 111° W. from Greenwich. In form it is a rectangular parallelogram, 350 miles long from east to west, 280 miles broad and containing an area of 97,883 square miles, or 62,645,120 acres.

Physical Features.—*Surface.*—The surface is iu general an immense plateau, having a mean elevation of 6500 feet above the sea-level. From this plateau the Rocky Mountains rise iu ridges and groups which are designated by various local names. In the south-east are the Black Hills (Rocky Mountain group), terminating in Laramie Peak, which has an elevation of 10,000 feet, and the Medicine Bow Mountains. In the north-east are the Black Hills (Dakota group), of which Inyan Kara is 6600 feet high. The Big Horn Mountains occupy the northeru district; and iu the west and north-west are the Wind River Range and the Snow Mountains, or Sierra Shoshone. Among the most elevated summits are Fremont's Peak (13,570 feet), Washakee Needles (12,253), Mount Sheridan (10,420), Mount Doane (10,118), Mount Washburne (10,105) and Sailor Mountain (10,046). *Rivers.*—In the snow-covered mountains of North-western Wyoming, within a radius of ten miles, the head-streams of three of the great rivers of America take their rise—viz., the Yellowstone, flowing into the Missouri, the Snake, into the Columbia, and the Green, into the Colorado. The Green River drains a basin in the south-west 223 miles long aud 75 miles wide, which was formerly the bed of a lake. The Yellowstone Basin has an area of 5000 square miles. The Wind and Big Horn Rivers (which empty into the Yellowstone in Montana) drain a district 176 miles loug and 126 miles wide in the north. The south-eastern section, 204 miles long and 173 miles wide, belongs to the North Platte Basin. All of these rivers have numerous tributaries, affording abundant water power, but Wyoming contains no navigable streams. *Forests.*—A dense growth of conifcrous trees clothes the mountains; the timber line is at an elevation of from 9400 to 9900 feet. From the mountaiu pines is obtained "the finest timber in

the world." Cottonwood flourishes along the streams. The Big Horn Basin is scantily wooded. Game is plentiful, including the antelope, bear, bison, big horn or mountain sheep, beaver, deer, elk, grouse, etc. *Yellowstone National Park.*—A tract larger than the State of Delaware has been set apart by Congress for a National Park, which "surpasses Niagara and Yosemite," says Professor Langford. "It will in time become the most popular summer resort in the country, perhaps in the world," says Captain Jones of the United States Exploring Expedition. High mountains wall in the great basin on every side. The Yellowstone Lake lies in a broad, rolling plateau, at an elevation of 7564 feet above the sea. Issuing from it is the Yellowstone River, which plunges down the great fall 328.7 feet (more than twice the height of Niagara). The grand geyser throws up a column of dark blue liquid to a height of 200 feet. There are many groups of hot springs, in one of which a temperature of 194° has been observed. Prof. Hayden's party caught trout from the lake, and found the waters of a spring near by warm enough to cook them. Chimney Rock has an altitude of 11,853 feet, and is covered with trees to the height of 10,760 feet. From the summit of Red Mountain 407 distinct mountain peaks have been counted, together with 10 large lakes and many smaller ones. The view extends over 50,000 square miles, including parts of Montana, Idaho and Utah as well as Wyoming. An act was approved by Congress April 6, 1874, providing for the construction of a military road from Green River to the Yellowstone Park.

Soil and Climate.—The soil of the great plateau, produced by the decomposition of volcanic rocks, is naturally fertile. The Laramie plain is covered with nutritious grasses, but irrigation is needed for the production of good crops. In the Big Horn Basin the land is generally rugged and barren. A rich black loam was found in the Yellowstone Basin; summer frosts may prevent its cultivation. On 13 days during the month of August, 1873, the temperature was below freezing; on the 28th the mercury fell to 13.5°; June 15th, 1874, it rose to 115°; and the temperature of the sand, two days previous, was 126°. At Cheyenne the mean for the year ending Sept. 30, 1874, was 45.6°; maximum, 98°; minimum, —24°. Upon 9 days the mercury fell below zero, and upon 28 days rose above 90°. The interval between frosts (32°) was from May 15 to Sept. 3, 110 days. The isothermal lines crossing the Territory are: Spring, 40°–50°; summer, 60°–72°; autumn, 45°–50°; winter, 20°–30°; annual mean, 40°–50°.

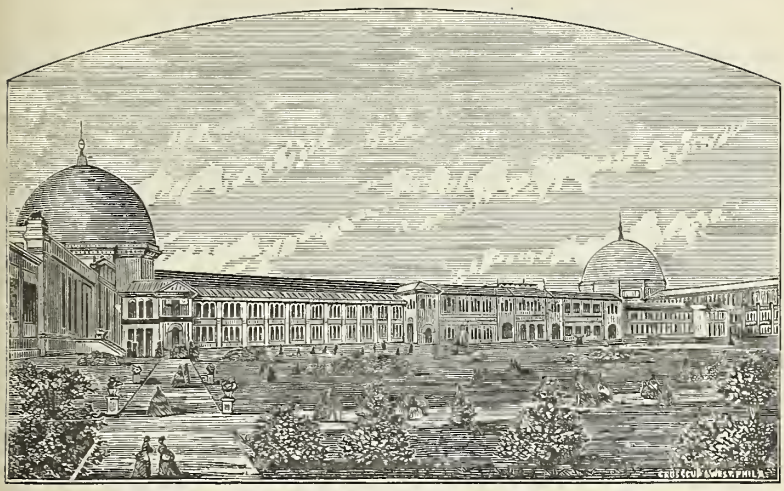
Agriculture, Manufactures and Mining.—In 1870 the number of acres in farms was 4341, of which 338 acres were improved; average size of farms, 25 acres; value of farms, farm implements and live-stock, $465,705; value of productions, $42,760. There were 32 manufacturing establishments, which employed 502 hands, used materials to the

value of $280,156 and produced articles valued at $765,424. Coal is mined at several points. Gold, silver, copper, lead, iron and petroleum have been found in considerable quantities. The value of mining produets reported by the census was $850,000.

Education.—A compulsory school law is in force. In 1874 the number of school districts was 27; teachers, 28; pupils enrolled, 1200; value of school-houses, $40,000; receipts for school purposes, $50,000. The average salary of male teachers was $1500 and of female teachers $900. There were, in 1870, 31 libraries, containing 2603 volumes, 12 religious organizations, with as many edifices, and 6 periodicals, of which 2 were dailies; 4 daily and 4 weekly papers were published in 1875.

Population and Towns.—The total number of inhabitants at the last census was 11,518 (least of all the States and Territories), of whom 8726 were white, 183 colored, 143 Chinese and 2466 Indians; 293 (exclusive of Indians) were born in the Territory, 5312 had come in from other parts of the Union and 3513 from foreign countries. There were .009 persons to a square mile. *Cheyenne City*, the capital, is situated in the south-eastern corner of Wyoming, on the Union Paeific Railroad. It is connected with Denver City, Colorado, 106 miles to the south, by the Denver Pacific Railroad. Extensive machine- and railroad repair-shops are located at Cheyenne. The city is an important distributing-point for the United States forts and Indian agencies. There are five churches and two newspaper offices, from which both daily and weekly editions are issued. The population in 1870 was 1450, and in 1875 about 3000. *Laramie City*, 57 miles west of Cheyenne, also eontains large machine-shops for railroad work. It has 5 churches and 2 daily papers. Population in 1870, 828, and in 1875 about 2500. Other growing towns are South Pass City, Rawlins' Springs, Atlantic City and Fort Bridger. The Union Pacific Railroad extends across the southern part of the Territory. The railroad mileage in 1874 was 459.

Government and History.—The President, with the advice and consent of the Senate, appoints the leading executive and judicial officers. Legislative authority is vested in a council of 9 members and a house of representatives of 13 members. A bill was passed by the first territorial legislature giving to women the right to vote, hold office and serve upon juries. Attempts have been made to repeal this act; but the governor vetoed the bill to that effect which passed the legislature, and said in his message, "Our system of impartial suffrage is an unqualified success." Wyoming was organized as a Territory, from parts of Dakota, by act of Congress passed July 25, 1868, and is the youngest member of the Union.



Engraved expressly for Burley's United States Centennial Gazetteer and Guide.

LONDON INTERNATIONAL EXHIBITION, 1862.

THIS exhibition was held in a vast brick building, lighted by a roof and two immense cupolas of glass, and erected on a large space of land acquired by the Royal Commissioners of the Great Exhibition of 1851, adjoining the beautiful garden of the Horticultural Society at South Kensington. It was designed by Captain Fowke, R. E., and it was evidently the intention of the projectors of this building that it should be retained and devoted to other purposes after the exhibition, but neither the project nor the edifice itself found favor with the public. The space covered about seventeen acres, including some portions of the buildings of the garden let by the Horticultural Society for refreshment room, etc. Of this space 391,146 square feet were occupied by objects exhibited, besides 284,670 square feet of wall and other vertical space made by internal partition, etc., to which must be added 93,220 square feet of horizontal and vertical space occupied by works of art arranged in one of the most admirably-constructed galleries ever designed for such a purpose. The erection of this building occupied about one year. There were 7,000,000 bricks used, also 4000 tons of cast iron and 12,000 tons of wrought iron. There were 820 columns of 25 feet, equal in their combined length to 4 miles, together with 6 miles of iron girders, 1266 in number. More than 1,000,000 square feet of floor were laid. To cover the roof 486,386 square feet of felt were used, equal to 11 acres, and the glazing required 353,000 square feet of glass, which weighed 247 tons and would cover more than 8 acres. Every precaution was employed to make sure of the strength of

the floors and staircases in view of the severe strain to which they would be subjected during the exhibition. A body of men, about 400 in number, closely packed upon a space 25 feet by 25 feet on one floor, moved in step, and afterward ran over the different galleries and down each staircase. At the same time the effect of this strain upon the girders, etc., was carefully noted. The iron girders were bent only one-eighth of an inch at the centre, and the timber-trussed beams of the same bearing were deflected half an inch at the centre, and both the girders and the trusses immediately recovered their original position on the removal of the load.

The exhibition was opened on the 1st of May, 1862, by the duke of Cambridge, the queen being prevented from performing the ceremony in person by the recent death of her husband, Prince Albert. The latter, we may note in passing, was the first to suggest the idea of an *international* exhibition when plans were being made for the London Exhibition of 1851, elsewhere described. He had taken a lively interest in all the preparations for the present display, and his death, when those preparations were about half completed, was brought vividly to mind by the absence of the queen. In the ode which was sung (written for the occasion by the poet-laureate Tennyson) he is alluded to as the

> "Silent father of our kings to be,
> Mourned in this golden hour of jubilee."

This ode was sung by 2000 singers, accompanied by 400 instruments. The "key" of the Exhibition (a master-key which really opened every lock on the doors of the buildings) was presented to the duke; and after various musical selections were rendered, including the national anthem, he formally declared the Exhibition open.

This Exhibition was open 171 days. The aggregate number of visitors was 6,211,003; average number of visitors per day 36,328. The exhibitors numbered 28,653, there being 26,348 in the Industrial Division, whose articles were arranged in 36 classes, and 2305 artists in the Fine Arts Division, whose works were arranged in 4 classes. There were 8487 British manufacturers and 17,861 foreign manufacturers, 990 British artists and 1305 foreign artists. The extent of the Fine Art collection surpassed all expectations. It consisted of 3370 paintings in oil and water colors, 901 pieces of sculpture, 1275 engravings and etchings, and 983 architectural designs. The entire cost of this gigantic enterprise was £321,000. The money received for admission amounted to £328,858. A guarantee-fund, amounting in the aggregate to £450,000, had been pledged in various sums by 1152 subscribers, so that there was "no such word as fail." The whole number of awards was 13,423, of which 8141 were in the form of medals and 5282 were diplomas. Fifty-six of the former and twenty-nine of the latter were awarded to Americans.

THE CENTENNIAL CITY.

"Pulchra duos inter sita stat Philadelphia rivos;
Inter quos duo sunt millia longa viæ.
Delawar his major, Sculkil minor ille vocatur;
Indis et Suevis notus uterque diu.
Hic plateas mensor spatiis delineat æquis
Et domui recto est ordine juncta domus."
T. Makin (1728), *Master of Friends' Grammar School.*

Beautiful Philadelphia is situated between two rivers separated from each other by a distance of two miles. The greater of these is the Delaware; the lesser, the Schuylkill, both having been for a long time known to the Indians and the Swedes. Here the surveyor lays out the streets with equal spaces between, and house is joined to house in a straight row.

Situation and Extent.—The city of Philadelphia is situated on the Delaware and Schuylkill Rivers, 96 miles from the Atlantic Ocean and 85 miles from New York. It is bounded on the N. E. by Bucks county, E. and S. E. by the Delaware River, S. by Delaware county and W. and N. W. by Montgomery county. The extreme length is 23½ miles, the breadth from 5 to 10 miles and the area 129¾ square miles, or 82,640 acres. Independence Hall is in latitude 39° 57′ N. and longitude 1° 50′ E. from Washington, or 75° 10′ W. from Greenwich.

Physical Features.—*Surface.*—The southern district, at the intersection of the rivers, is low and marshy; the central part is level, but sufficiently elevated to secure good drainage. Along the Delaware are gravel-banks from 10 to 50 feet in height. In the west and north-west the land is rolling and picturesque, affording fine sites for suburban residences. *Rivers and Islands.*—The Delaware has a width of 4086 feet opposite the city, and its greatest depth is 56 feet. The Schuylkill (which signifies in the Low Dutch dialect "hidden river") is 1264 feet wide at Vine street and 2040 feet wide at South street. It is spanned by ten bridges within the city limits. The *Report of the Board of Trade* says: "One-third of the exports of Philadelphia pass out of this river." Poquessink Creek constitutes the north-eastern boundary of the city. Tacony and Wingohocking Creeks unite to form Frankford Creek, which empties into the Delaware above Bridesburg. Cobb's, Darby and Bow Creeks constitute

the south-western boundary. Wissahickon Creek enters Philadelphia at the north-east corner, and discharges its waters into the Schuylkill at the Falls. At the junction of the Schuylkill and the Delaware is League Island, which contains 600 acres and is separated from the main land by Back Channel. A little below are Hog Island and Mud Island (upon which Fort Mifflin is built); above are Windmill Island and Smith's Island (opposite Spruce and Walnut streets) and Treaty Island (opposite Richmond).

Soil and Climate.—The soil is a sandy loam of great natural fertility. Much attention is paid to the cultivation of flowers and fruits about the suburban residences, and market-gardening is extensively carried on in the rural wards. Concerning the *climate*, William Penn wrote to Lord North, on the 24th of May, 1683, "The weather often changeth without notice, and is constant almost in its inconstancy." An old record says that the first settlers found "a sky as clear in winter as in summer, not foul, thick or black," and "the air, though cold and piercing, yet did not require more clothes than in England." A prevalent saying in the early part of the eighteenth century was, "We have always grass at Easter." In the year 1704 snow fell "one yard deep," and in the winter of 1779–80 the Delaware remained frozen for three months. Loaded wagons have crossed the river on the ice during some seasons, and during others navigation was not at all obstructed. In August, 1789, "fires became agreeable." On the 8th of May, 1803, there was a snow "which broke down the poplars and other trees in leaf," and June 10, 1816, "a frost so severe as to kill beans." April 12, 1841, "snow fell to a depth of 15 inches." The recorded range of the thermometer is from 7° below zero to 103° above. During the year ending Sept. 30, 1874, the maximum was 97°; minimum, 10.5°; mean, 52°; mean of the coldest month (February), 33.2°; mean of the warmest month (July), 74.4°. Upon 9 days the mercury rose above 90°. Rain or snow fell upon 136 days in 1874; the total rainfall was 46.31 inches, and the mean of the barometer 30.080 inches. A record of the annual rainfall has been kept at the Pennsylvania Hospital for 50 years; the greatest fall was 61.187 inches, in 1867, and the least 29.57 inches, in 1872. The isothermal lines passing through Philadelphia are: Autumn, 55°; winter, 32°; spring, 55°; summer, 72.5°; annual mean, 52.5°.

Streets and Parks.—Dean Prideaux says: "Penn had the celebrated city of Babylon in view as a model for his American town." In the original plan of 1683 the city extended from the Delaware to the Schuylkill, a distance of two miles, and from Vine street on the north to Cedar (now South) street, a distance of one mile; its area was about 1300 acres. There were nine streets running east and west, of which High street (now Market) was 100 feet wide and designed to be the principal avenue. The streets to the north and south were named, from the native

shrubs and trees, Vine, Sassafras (later called Race, as leading to the race-ground), Mulberry (changed to Arch, from the arch over a creek), Chestnut, Walnut, Spruce, Pine and Cedar. There were twenty streets extending north and south, of which the fourteenth from the Delaware was laid out 100 feet wide (since increased to 113 feet) and called Broad street. This street now stretches from League Island northward to the city limits, a distance of twelve miles, without once deviating from a direct line. It is claimed to be the longest, straightest and widest street in the world. The north and south streets are designated as 1st (Front) street, 2d street and so on, beginning at the Delaware; 23d street reaches the Schuylkill; west of that river the first street is 30th, and the designation by numbers extends to the city line. Each square is reckoned as having 100 numbers, whether it contains many or few buildings. These numbers extend from the Delaware west, and from Market street north and south. Strangers who have been perplexed by the "blocks" of New York and the "triangles" of Boston will find the "squares" of Philadelphia very easy of comprehension. Most of the original squares are now subdivided by cross-streets. From the old city country roads extended diagonally toward the neighboring towns. These roads are now lined with buildings for many miles, and have taken the more pretentious names of "avenues;" but old Philadelphians still speak of the Ridge Road and Germantown Road (extending toward the north-west), Old York Road (to New York) and Frankford Road (extending north-east) and Darby Road (toward the south-west). The suburban towns now comprehended within the city limits have been conformed to the same general system of numbering from the Delaware and Market street, and the numbers run up as high as from 5000 to 9000. Philadelphia contains nearly 600 miles of paved streets. The extension has been mainly within the present century. In 1768 the improved parts of the city reached no farther west than 8th street. Spatterdock Pond (4th and Market streets) was "the best game-pond anywhere to be found." *A public square* of eight acres was provided in the original plan for each of the four districts into which the city was divided by Broad and Market streets. These squares were designed "for the like uses as the Moorfields in London." In the north-eastern district was Franklin Square, and in the north-western Logan Square, both extending from Race to Vine street; in the south-east was Washington Square, and in the south-west Rittenhouse Square, both having Walnut street as their northern boundary. At the intersection of Market and Broad streets was Penn Square, containing ten acres, which is the site of the new City Building. About the State-House also there was a public square. Extensive grounds are now connected with Girard College, the United States Arsenal, the Naval Hospital, the Hospital for the Insane and the Almshouse. *Fairmount Park.*—In 1819 a dam was built across the Schuylkill

for the purpose of supplying the city with water. The grounds adjoining the water-works contained five acres and were open to the public; this was the extent of Fairmount Park at its beginning. In 1856 it contained about 70 acres, and included Lemon Hill. In 1868 additional grounds were purchased. "At the opening of the year 1869," says the Report of the Park Commissioners, "nothing in the way of improvements had been commenced on the grounds recently acquired." The Lansdowne drive, from the Schuylkill to George's Hill, was opened on the 23d of June, 1869, just nine weeks from the date of its commencement. The Park contained over 4000 chestnut, walnut and other nut-bearing trees; and on the 8th of October, 1869, upward of 60,000 children from the public schools participated in the grand frolic of the first "nutting-day." During the five months ending with November 30, 257,258 visitors entered the Park through the Girard Avenue entrance alone. Up to the close of the year 1869 the amount paid by the Commissioners for 263 distinct parcels of land, with improvements, was $3,208,269.88. Fairmount Park now extends on both sides of the Schuylkill for seven miles, and along the Wissahickon for six miles; its greatest length, from Fairmount to Chestnut Hill, is fourteen miles, and its area 2991 acres. This is more than three times the area of Central Park, New York (863 acres), and four and a half times the area of Prospect Park, Brooklyn (630 acres). The trees are estimated at over 300,000 in number; 104,000 have been enumerated in the Schuylkill section, of which some are 27 feet in circumference. Although 500 acres will be needed for the purposes of the Centennial Exhibition, Philadelphia will still exhibit to the visitor an unencumbered pleasure-ground larger than the combined area of the parks of the other leading American cities.

Principal Buildings.—According to the census of 1870, Philadelphia contained 112,366 dwellings, which was more than the number in New York (64,044) and in Brooklyn (45,834) combined. Chicago (44,620), St. Louis (39,656) and Boston (29,623) together contained only 1552 dwellings more than the "city of homes" alone. The disparity is even greater now than five years ago. During the year 1874, 1357 new buildings were erected in New York and 1470 in Brooklyn, making a total of 2827, while Philadelphia in the same time put up 5040 new buildings, of which 4309 were dwelling-houses. Nor was this an exceptionally prosperous year. On the contrary, there was a falling off from the two previous years; in 1873 the number of buildings erected was 5222, and in 1872, 5756; total for three years, 16,018, or nearly twice as many as the whole number of dwellings belonging to the city of Richmond, Virginia, according to the Federal census. The city, which contained 5460 buildings in 1776, will show 148,000 in 1876. The typical house of the "Quaker City" is built of pressed brick, with white marble steps and facings, and has solid

wooden shutters painted white. Brownstone fronts, Venetian blinds and Mansard roofs are innovations now meeting with great favor. The ante-revolutionary honses of the suburbs were constrncted of concrete which still remains firm. The elegant mansions of Germantown, Chestnnt Hill and West Philadelphia are mostly of pointed stone. Costly strnctures of granite, marble, sandstone and iron adorn the principal thoroughfares. *Independence Hall* shonld be mentioned first among noteworthy buildings. This was the old State-Honse, begnn in 1729 and completed in 1734; the wings were added in 1740. In the cast room the Declaration of Independence was adopted by the second Continental Congress. This hall is now embellished with the portraits of many of the original signers of the Declaration, and contains many historical relics, among which is the old bell with the inscription, "Proclaim liberty throughont all the land, unto all the inhabitants thereof." In the west bnilding the first Congress assembled; and there George Washington and John Adams were inangurated as Presidents of the United States. The new *City Building* was bcgun Aug. 10, 1871. The expenditnres up to May 15, 1875, were $1,999,841.01. It was originally estimated that the structnre could be completed in six years, at a cost of $10,000,000; bnt both of these estimates will probably need a considerable enlargement. Four and a half acres are covered by the edifice, which is 486½ feet long from north to sonth, 470 feet wide from east to west; and contains 520 rooms. The apex of the dome will be at the height of nearly 300 feet. The new *Post-Office*, on the former site of the University of Pennsylvania, at 9th and Chestnut strcets, is to be bnilt of granite from Dix Island, Maine. Its dimensions are, length 428 feet, depth 152 feet, height of dome 184 feet. Congress limited the cost to $4,000,000. The United States *Custom-House* was built in 1819–24 for the second United States Bank, at an expenditure of $600,000. It is in the Doric style, and has a front of 87 feet and a depth of 161 feet. The United States *Mint* was completed in 1833. The *Academy of Music*, which will seat 3000 persons, has a front of 140 feet on Broad street and a depth of 283 feet on Locnst street; the stage is 90 feet wide and 100 feet deep; estimated valnation of the property, $800,000. Near by is the *Union League Club House*, finished in May, 1865, at a cost of $200,000. At the corner of Broad and Sansom streets is the building of the *Academy of Natural Sciences*, containing 300,000 specimens and a library of 25,000 volumes. A magnificent new strnctnre, fronting on Logan Square, will soon be ready for occnpancy. The *Masonic Temple* was five years in building, and cost $1,300,000. The *Academy of Fine Arts*, fonnded in 1805, are erecting, at a cost of $300,000, a new bnilding having a frontage of 100 feet on Broad street and a depth of 258 feet on Cherry street. Their collection contains the finest paintings of Benjamin West, Allston, Stuart and others. The *Ridgway Library Building*, on South Broad street, to cost

$1,500,000, was erected by the munificence of Dr. James Rush. Among other noticeable buildings are Horticultural Hall, the Reform Club House, Continental Hotel, Girard House, Ledger Building, Carpenters' Hall, Commercial Exchange, Merchants' Exchange, the United States Navy Yard and the Arsenal, Christ Church and the Cathedral of Sts. Peter and Paul, completed in 1864, at a cost of more than a million dollars. Several fine market-houses have been erected in various parts of the city.

Manufactures.—Philadelphia, at the last census, ranked first among the cities of the Union in the number of manufacturing establishments, capital invested, hands employed, wages paid and materials used. New York excelled in the value of manufactured articles, perhaps from a greater facility in "putting up prices." The number of manufacturing establishments in Philadelphia was 8184; hands employed, 137,496, of whom 95,421 were males above the age of 16 years, 32,687 females above the age of 15, and 9388 youth; capital invested, $174,016,674; wages paid, $58,780,130; value of materials used, $180,325,713; value of products, $322,004,517. Among the principal industries in value were: Molasses and sugar, refined, $25,949,876; woollen goods, $17,943,826; clothing, $17,757,932; printing and publishing, $10,107,451; carpets, $9,798,019; boots and shoes, $9,231,348; cotton goods, $8,272,698; worsted goods, $7,762,369; paper, $7,487,911; patent medicines, $6,101,592; printing of cloths, $5,713,584; machinery, not specified, $5,841,886; locomotives, $3,490,279 (one establishment employs 3000 hands and turns out a locomotive every eight hours); engines and boilers, $2,450,224; iron, forged and rolled, $2,970,492; stoves, heaters, etc., $1,678,532; hosiery, $5,164,405, etc. The coal-oil refineries have a capacity of 6400 barrels per day.

Commerce and Navigation.—The largest ocean steamers can come up to the docks, and by means of the three city ice-boats the channel is kept open during the winter. In 1804 the number of arrivals was 1799 and of clearances 1764; in 1873 there were 10,734 arrivals, foreign and coastwise. The value of *exports* in 1790 was $7,953,418; in 1872, $21,016,750; 1873, $24,239,357; 1874, $33,121,337. There was an increase of 36.6 per cent. during the last year, and Philadelphia ranked next to New York and New Orleans in the value of exports. Among the principal articles in value were petroleum (refined), $9,366,517; wheat, $4,740,796, and cotton, $2,107,981.. The value of *imports* in 1872 was $20,383,858; in 1873, $25,393,150; in 1874, $26,447,037. While the decrease for the United States was 11.3 per cent., the increase at Philadelphia was 4.15 per cent. This port ranked next to New York, Boston and Baltimore in the value of imports. Packages to the number of 13,080 were received by the American and Red Star lines to be sent in bond to other cities; of these 6802 were destined for New York; 10,878 passengers arrived during the year (of whom 8869 were immigrants), against

3681 in 1873; in the foreign trade 1008 vessels entered and 1105 cleared. Through the kindness of the deputy-collector of the port we are enabled to present the following statistics for the fiscal year ending June 30, 1875: Value of imports, $24,236,387; value of exports, $28,588,019; duties received, $8,285,814.59; foreign entrances, 562 vessels, with a tonnage of 326,287; clearances (American 474, foreign 590), 1064 vessels, of 623,-892 tons. The number of vessels in the district was 153 registered; 2732 enrolled and licensed (above 20 tons) and 170 licensed (under 20 tons); total, 3055 vessels, of 407,584 tons. The *produce* receipts at Philadelphia in 1874 were 1,401,636 barrels of flour, 5,471,700 bushels of wheat, 5,954,700 of corn and 4,705,000 of oats. Elevators have been built at the junction of the two rivers having a capacity for 1,000,000 bushels, which can be increased to 4,000,000. Vessels drawing 24 feet of water can lie at the dock without grounding at low tide. Twelve vessels can be loaded at one time. The increase of grain shipments in 1874 was 44.25 per cent., without the above improvements. The number of *cattle* received was 167,130 beeves, 18,010 cows, 339,590 hogs and 757,040 sheep. *Coal* was shipped from Port Richmond to the amount of 2,051,127 tons.

Railroads.—In 1755 Benjamin Franklin, then Postmaster-General, gave notice that the mail from Philadelphia to New England "shall start once a week, whereby answers may be obtained to letters between Philadelphia and Boston in three weeks, which used to require six weeks." Three days was the time required for reaching New York by the regular stage. The railroad to Germantown was one of the first completed in the United States. Horses were used for a time; the first locomotive, "Old Ironsides," was put on in 1833. In 1875, 106 regular passenger trains passed over the Germantown and Norristown Railroad every day. The Reading Railroad was opened Jan. 1, 1842, and the Pennsylvania Railroad, commenced in 1847, was completed Feb. 15, 1854. The railroads now centring at Philadelphia are the Pennsylvania, which has a perpetual lease of the united companies of New Jersey and the Philadelphia and Trenton Railroad, thus controlling a through line from New York as well as from the West; the Philadelphia and Reading, which, besides its main line and its coal-road to Richmond, also operates the Germantown and Norristown road; the North Pennsylvania, the Philadelphia, Wilmington and Baltimore, and the West Chester Railroads. Three railroads which terminate at Camden, on the New Jersey side, also belong to the Philadelphia system. From the *Report of the Auditor-General* for 1874 we have compiled the following statistics concerning the *street railways* of the city: Number of separate companies reporting, 17; length of main tracks, 233.81 miles; cost of roads and equipments, $7,737,459.78; number of cars, 883; horses, 5196; passengers carried during the year, 75,498,652. These lines have been very largely extended during the year 1875, in order

to supply the present needs of local travel as well as to accommodate the visitors to the International Exhibition in 1876.

Public Institutions and Education.—The City Prison (Moyamensing) was opened in October, 1835. The greatest number of commitments in any one year during the last two decades was 20,801, in 1860. There were 18,706 commitments in 1875, and the expenses of the institution were $117,694.55. The Eastern Penitentiary (a State institution) occupies a whole square on Fairmount avenue. A House of Correction was opened at Holmesburg, near the Delaware, Jan. 15, 1874, and up to Jan. 1, 1875, 3734 prisoners had been received. At a special meeting of the commissioners, held Oct. 25, 1875, a report was presented showing that the cost of the ground was $25,000; building, $999,300; architects, etc., $19,311; total, $1,043,611; expenses of managers, $478,352; estimated amount needed for 1876, $313,020; number of inmates, 1177. The House of Refuge, for boys and girls, opposite Girard College, has about 600 inmates. The Blockley Almshouse, in West Philadelphia, on the 23d of October, 1875, at noon, contained 3511 persons, of whom 1810 were males (105 colored) and 1701 females (148 colored); number of deaths during the year, 799; expenditures, $529,513.26. On the 28th of May, 1755, the corner-stone of the Pennsylvania Hospital was laid, and upward of 100,000 patients have received the benefits of the institution. There is a separate department for the insane, located in West Philadelphia. The Asylum for the Deaf and Dumb was incorporated in 1821. A new building, with accommodations for 400 persons, was opened Oct. 21, 1875. The Institution for the Blind, founded in 1833, is located on Race street, at the corner of 20th. On Gray's Ferry road is the United States Naval Asylum, where superannuated sailors find a comfortable home. The hospitals, asylums and dispensaries of Philadelphia are upward of forty in number. Among the leading institutions, besides the Pennsylvania, are the Presbyterian, Episcopal, Roman Catholic, Jewish and German Hospitals, and the hospitals of the University of Pennsylvania, the Hahnemann Medical College and the Woman's Medical College. For *educational purposes* the city of Philadelphia constitutes the first school district of Pennsylvania. A system of public-school instruction was established in 1818. During the year ending Dec. 31, 1874, the number of schools under the supervision of the Board of Public Education was 467, divided as follows: 212 primary, 121 secondary, 29 consolidated, 60 grammar, 41 night schools, and, at the head of the public-school system, the Central High School (for boys), with 611 pupils, and the Girls' Normal School, with 605 pupils. The number attending the day schools was 91,950; night schools, 16,681; total number of scholars, 108,631; teachers of day schools, 1776; of night schools, 215; total number of teachers, 1991; expenditures for school purposes, $1,607,736.81; net value of school-houses, lots and furni-

ture, Jan. 1, 1875, $4,837,336. The University of Pennsylvania was incorporated in 1755; a medical department was added in 1764, and a law department in 1789. The buildings recently erected in West Philadelphia are among the finest in America. Girard College was opened in 1848 for the admission of "poor white fatherless boys, not under six nor over ten years of age." The average number of pupils is 550, and the expenditures were $174,073.40 during the last year. Philadelphia has long been famous for its medical schools. There are now four medical colleges—viz., the Medical College of the University of Pennsylvania (the oldest in America), Jefferson Medical College (founded in 1825), Hahnemann Medical College (1848) and the Woman's Medical College (1850). In addition to these there are two dental colleges and a college of pharmacy. A divinity school of the Protestant Episcopal Church was established in 1862, and an Evangelical Lutheran theological seminary in 1864. Scientific instruction is given by the Franklin Institute, the Academy of Natural Science and the Wagner Free Institute. The Federal census reported 3700 libraries in Philadelphia, containing 2,985,770 volumes. The *Philadelphia Library* was founded in 1731 by Benjamin Franklin and others; the present edifice, first occupied in 1790, contains 110,000 volumes. The *Mercantile Library* occupies a building 300 feet long and 80 feet wide, on 10th street near Chestnut. It contains 125,000 volumes (but five libraries in America have more), and 503 periodicals are regularly received, of which 390 are American and 113 foreign; 120 are dailies, 215 weeklies, 126 monthlies and 30 quarterlies; 17,004 volumes were added during 1874; the number of visitors to the rooms in 1873 was 507,742, and in 1874, 501,621; total for two years, 1,009,363. Other extensive and choice collections of books belong to the Academy of Natural Sciences (27,000 volumes), Athenæum (22,000), Apprentices' Library (21,000), American Philosophical Society (16,000), Historical Society (15,500), German Society (15,000), Pennsylvania Hospital (14,000). Several other libraries contain between 5000 and 10,000 volumes. At Germantown is the Friends' Library (free), with 6000 books and many pamphlets. The city contains 488 churches and missions, among which are 99 Presbyterian (General Assembly, United and Reformed), 91 Methodist Episcopal, 90 Protestant Episcopal, 61 Baptist, 42 Roman Catholic, 26 Lutheran, 14 Friends (Orthodox and Hicksite), 15 Reformed (German), 11 Jewish, 4 Reformed (Dutch), 3 Congregational, 3 Swedenborgian, 3 Universalist, 2 Unitarian, etc. The number of newspapers and periodicals in 1875 was 151, of which 19 (4 of them German) were issued daily.

Government and Departments.—A city charter was obtained Oct. 25, 1701. The area remained as in the plan of 1683 (about 2 square miles) until 1854. On the 2d of February in that year the Consolidation Act received the governor's signature; and ten municipal corporations, six

boroughs and thirteen townships were included within the limits of the city of Philadelphia, which was made coextensive with the county of the same name. The mayor is elected for a term of three years. Legislative authority is vested in a select council, consisting of one member from each of the 31 wards, and a common council, consisting of one member for every 1200 taxable inhabitants. There are departments of law, health, prison inspection, the poor, police, highways, water, fire, surveys, education and taxes. The *police* force consists of 1292 men; expenditures of the department for 1874, $1,184,066.53; number of arrests, 32,472; persons lodged in station-houses, 40,857; messages transmitted over police and fire-alarm telegraph, 117,215. The *fire* department consists of 32 companies, with 27 engines and 123 horses; expenditures for 1874, $519,291.53; number of fires, 626; loss, $754,688. Of *gas* 1,766,268,000 cubic feet were manufactured during the last year; number of consumers, 81,712; number of lights, 1,124,205; street lamps, 9905; extent of street mains, 612 miles. The line of street lights extends for 13 miles in a direct line from Darby road to Holmesburg. On Christmas Eve the consumption of gas was 7,826,000 cubic feet. *Water* was first thrown into the city from Fairmount Jan. 21, 1801. The city is now supplied from both the Delaware and the Schuylkill through seven separate works. During 1874 the number of gallons pumped was 14,533,425,097; average per day, 42,111,730 gallons; expenditures, $1,225,102; receipts, $1,229,881. The expenditures of the highway department were $2,771,554. *Vital Statistics.*—Deaths were reported to the number of 15,238, of which 621 (including 19 homicides and 59 suicides) were by violence; average number of deaths per day, 41.74. There were 19,387 births (more than 50 per day) and 6639 marriages (18.18 per day). In the 14 years from 1861 to 1875, 216,545 persons died and 229,683 were born within the city limits. *Finances.*—The municipal expenditures during 1874 were $16,148,099.50; value of real and personal estate (city tax), $548,243,535; valuation in 1875, $575,283,968, showing an increase during the year of $27,040,433. On the 1st of January, 1875, the funded debt was $55,272,132.40; assets of city property at market value, $77,624,025.10.

Growth in Population.—The number of inhabitants in 1684 was 2500; in 1753, 14,563; in 1800, 81,005; in 1810, 111,210; in 1820, 137,097; in 1830, 188,961; in 1840, 258,037; in 1850, 409,045; in 1860, 565,529; in 1870, 674,022; and in 1875 (by per centage estimate of Board of Health), 800,000. Of the population in 1870, 183,624 were natives of foreign countries and 490,398 of the United States. Philadelphia was the capital of Pennsylvania until the beginning of the present century, and the seat of government of the United States from 1790 to 1800.

NOTE.—For corrected statistics of the manufactures of Philadelphia, see introduction to *General Descriptive and Statistical Account of the Business of the United States.*

COINS AND CURRENCY.

WHEN this country was first settled the colonists brought very little money with them. In Virginia tobacco was very early used as a currency, but, as it was not very portable in large quantities, as soon as the settlement was well established the tobacco was deposited in warehouses, and then the receipts for it passed from hand to hand as money. In Massachusetts the currency already in use among the Indians was, to a certain extent, adopted by the white settlers. This was the famous wampum, consisting of two kinds of beads—white ones made out of the end of a periwinkle shell, and black ones made out of the black part of a clam shell. When arranged in strings or belts these beads were used as articles of jewelry. One black bead was worth two white, and the full name of this money was *wampumpeag*, usually shortened for convenience into "wampum" or "peag." At first it was made a legal tender for only twelve pence in Massachusetts, six white beads or three black ones being worth one penny. A fathom, or belt, consisted of 360 beads; therefore when these were white the value of that quantity was five shillings, and when they were black its value was ten shillings. The white man showed his superiority to the savages by skilfully counterfeiting their rude but convenient money.

The use of such a currency was, of course, limited, as it would not satisfy foreign debts, and was liable to deterioration by wear and use. When the colonists got gold and silver they hoarded it up to pay for foreign commodities, and to supply its place they began to use a "barter-currency." Corn, beaver, cattle and almost everything that possessed value were made legal tender, at values which were fixed from time to time by the rate at which they would be received for taxes. In 1635 even musket-bullets were used for change at a farthing apiece, being legal tender for sums under twelve pence. The result of such a plan is well stated by a writer on finance: "If a cow will pay taxes, the leanest cow will be given. If corn will pay a debt, the corn which is of the poorest quality or damaged to a certain extent will be given. The more barter-currency was used because money was scarce, the scarcer money became. Prices rose to fit the worst form of payment which the seller might expect."

The first coins coined in the colonies were shillings, sixpences and threepences of the "pine tree currency," so called from their having a pine tree on one side. These were first made in 1652, and as the coining of them was not permitted by the mother-country, being a breach of the king's prerogative, all that were subsequently coined bore the same date, probably with the design of concealing the fact that the Boston mint was still at work. This artifice did not succeed, for Charles II. learned, soon after his restoration to the throne in 1660, that money was being coined in Massachusetts, and threatened to Sir Thomas Temple that the colonial authorities should be severely punished. Upon this Sir Thomas took some of the pieces out of his pocket to show the king. The latter, seeing the pine tree, asked what tree that was, and Temple replied that it was the Royal Oak which had preserved His Majesty's life; whereupon the king said no more about punishment, but laughed, and called the coiners "honest dogs." These coins were made 22 per cent. worse than sterling money, and were taken in England only at 25 per cent. discount. The barter currency was still continued, for in 1658 it was necessary to order that no man should pay taxes in "lank" cattle. Silver came from the West Indies, but it was straightway either smuggled out of the country or clipped down at least to the rate of the inferior currency, but generally below it. This silver was mostly Spanish, the dollar being worth four shillings sixpence sterling, or six shillings New England currency.

In 1690 an expedition against Canada caused the issue of the first paper money. Though the amount was small, being limited to only £40,000, and one-fourth of that sum which remained in the treasury was burned in the following year, the soldiers to whom it was paid disposed of it at one-third discount. Still, as the amount out was so small, and the notes were received for taxes at 5 per cent. advance over coin, they were kept at par for more than twenty years. In Connecticut at this time there were four prices for goods. They were called, respectively, "pay," "pay as money," "money," and "trusting." The merchant asked the customer how he would pay before fixing the price. "Pay" was barter-currency at the government rates. "Pay as money" was barter-currency at one-third less than the government rates. "Money" was Spanish or New England coin, also wampum for change. "Trusting" was an enhanced price, depending upon the time allowed, and affected, of course (as it is at this day throughout the world), by the credit and solvency of the purchaser. A sixpenny knife cost twelve pence in "pay," eight pence in "pay as money," and six pence in coin.

Little could be gained by following out the tedious details of the various colonial issues of paper money. Begun originally as war measures, they were continued, from time to time, "to relieve the money market." The plan of the man "who jumped into a bramble-bush and scratched out both

his eyes," was tried again and again, but not with the same success. To relieve the distress caused by the depreciation of one issue, "new tenor" bills would be put forth, with fresh guarantees, but these would soon be worth little more than their predecessors. In 1740, New England paper currency was worth twenty cents on the dollar. In 1748 its value had sunk to ten per cent. of its face. One would think that such lessons should have checked the over-issue of Continental currency, but the temptation to make money with the printing-press was too strong when the wealth of Great Britain was remembered.

The first issue of Continental currency was for 300,000 Spanish dollars, redeemable in three years in gold or silver. This was ordered in May and issued in August, 1775. Further issues were ordered as needed, but the paper did not begin to depreciate before the amount was $9,000,000. Then ensued a race between the depreciation of the currency and the printing-press. The lower the paper went, the greater was the quantity of it needed to purchase anything. On the other hand, the immense amount set afloat hastened the depreciation, and the British, as we have already noted (see HISTORICAL SKETCH), lent a helping hand by printing and circulating counterfeits. Over $350,000,000 of genuine notes were issued in all, but it is doubtful if more than $200,000,000 were out at any one time. One man, Pelatiah Webster, insisted on taxation instead of this wholesale money-making, but "a member of Congress indignantly asked if he was to help tax the people when they (Congress) could go to the printing-office and get a cartload of money."

Volumes could be filled with the details of the sufferings caused by this currency. Never was the patriotism of a people so thoroughly tried as was that of the Americans by the losses caused them by the bursting of this financial bubble. In May, 1781, the paper fell in a week from 175 dollars for 1 in specie to 525 for 1. In Rivington's *Gazette*, a royalist paper published in New York, appeared, at about this time, the following announcement: "The Congress is finally bankrupt. Last Saturday a large body of the inhabitants, with paper dollars in their hats by way of cockades, paraded the streets of Philadelphia, carrying colors flying, with a dog tarred, and instead of the usual ornament and appendage of feathers his back was covered with the Congress paper dollars. This example of disaffection was immediately followed by the jailer, who refused accepting the bills in purchase of a glass of rum, and afterward by the traders of the city, who shut up their shops, declining to sell any more goods but for gold or silver." Barber-shops were papered in jest with bills, and sailors, who had been paid off in bundles of this worthless money, had suits of clothes made of it, and paraded through the streets in decayed finery which in its better days had passed for thousands of dollars. Webster, after giving some of these details, says: "Thus fell, ended and died the

Continental currency, aged 6 years; the most powerful state engine, and the greatest prodigy of revenue, and of the most mysterious, uncontrollable and almost magical operation, ever known or heard of in the political or commercial world. It seemed to retain a vigorous constitution to the very last, for its circulation was never so brisk and quick as when its exchange was 500 to 1, yet it expired without one groan or struggle; and of all things which have suffered dissolution since life was first given to the creation, *this mighty monster died the least lamented.*"

In one State the Continental money was buried with all the honors of war. Its remains were deposited in an elegant coffin, and followed to the grave by a numerous concourse. An eloquent oration was delivered, narrating its services as those of a former friend and benefactor. When the obsequies were concluded the orator held in view a specimen of a new emission, authorized by the State to replace the old Continental money, and exclaimed, "Be thou also ready, for thou shalt surely die!" This prophecy was soon afterward fulfilled.

In 1786 a decimal currency was adopted by Congress, in accordance with a plan presented by Thomas Jefferson. As colonial notes were still in circulation, the depreciation of which was greater in some States than in others, and as the dollar had a fixed value, the currency in the different States had to be valued with reference to that. The difficulty was still further increased by the fact that the reckoning had formerly been made in pounds, shillings and pence, while now it must be changed into dollars and cents. Some plan must be contrived by which there would still be twenty shillings in the pound, for convenience in changing old accounts into the new style, and yet the difference in the value of the various currencies would be preserved. The value of the dollar being fixed, that of the pound was varied in accordance with the following

TABLE.

$1 in	New Eng. States, Virginia, Kentucky, Tennessee,	= 6s. = $\frac{3}{10}$£, called New Eng. currency; of which 1£ = $3\frac{1}{3}$; 1s. = $16\frac{2}{3}$ cts.
$1 in	New York, Ohio, Michigan, North Carolina,	= 8s. = $\frac{2}{5}$£, called New York currency; of which 1£ = $2\frac{1}{2}$; 1s. = $12\frac{1}{2}$ cts.
$1 in	Pennsylvania, New Jersey, Delaware, Maryland,	= 7s. 6d. = $\frac{3}{8}$£, called Pennsylvania currency; of which 1£ = $2\frac{2}{3}$; 1s. = $13\frac{1}{3}$ cts.
$1 in	Georgia, South Carolina,	= 4s. 8d. = $\frac{7}{30}$£, called Georgia currency; of which 1£ = $4\frac{2}{7}$; 1s. = $21\frac{3}{7}$ cts.

It will be noticed that the table contains the names of several States which were not admitted into the Union until long after the decimal system was adopted. This will show how long a time was required to introduce a uniform method of reckoning. Fines for offences and bounties for killing wild beasts were down in the statute laws in the old reckoning by pounds, shillings and pence. The bounty for killing a panther in New York State, for instance, was £8. This reduced to decimal currency was $20. Modes of reckoning and the names of towns and streets are very difficult things to change, requiring sometimes a whole generation. The accounts of the treasury of Great Britain were still kept on notched sticks at the beginning of the present century.

There is one foreign gold coin which deserves mention before proceeding to the coinage of the United States. This is the "half joe," or Johannes, so called from bearing the figure of King John of Portugal. It is a Portuguese or Brazilian coin, worth about eight dollars, a value which the dictionaries of both Webster and Worcester erroneously give to the *whole* joe. This had an extensive circulation in the colonies, and when our frugal ancestors wished to criticise the high price of an article of food, they said that to eat it was "like swallowing half joes."

The United States Mint at Philadelphia was established by act of Congress in 1792, but did not get fairly into operation until 1795. In 1787 a contract had been made with Mr. James Jarvis to furnish three hundred tons of copper coins, but they were struck at the New Haven Mint, an institution of the State of Connecticut established in 1785. This and similar State establishments were abolished by the adoption of the Federal Constitution, which prohibited coinage by the State governments. The coins ordered by the law establishing the mint were—in gold, $\frac{11}{12}$ fine, the eagle of ten dollars, weighing 270 grains, the half eagle and quarter eagle in proportion; in silver, 892.4 thousandths fine, the dollar, weighing 416 grains; the half dollar, quarter dollar, dime and half dime in proportion; in copper, the cent, weighing 264 grains, the half cent in proportion. In 1796 the weight of the cent was reduced to 168 grains. Various changes were made in the weight and fineness of the gold and silver coins, but in 1837 the standard of fineness of .900 or $\frac{9}{10}$ was adopted for both gold and silver coins, and has been retained with one or two exceptions to the present day. Gold dollars and double eagles ($20) were first made in 1849, three-dollar pieces in 1853. The copper cent was replaced in 1857 by a copper-and-nickel cent, containing 88 per cent. of copper and 12 per cent. of nickel, and weighing 72 grains. This was abandoned in 1864 for the present "bronze cent." All the various acts concerning this subject were consolidated or amended by the Coinage act of Feb. 12, 1873, in accordance with which the gold coins are a one-dollar piece, "which, at the standard weight of 25.8 grains, shall be the unit of value;" a quarter

eagle or two-and-a-half-dollar piece, weighing 64.5 grains; a three-dollar piece, weighing 77.4 grains; a half eagle or five-dollar piece, weighing 129 grains; an eagle or ten-dollar piece, weighing 258 grains; a double eagle or twenty-dollar piece, weighing 516 grains. These coins are a legal tender to any amount. The silver coins are a "trade dollar," weighing 420 grains; a half dollar, weighing 192.9 grains; a quarter dollar, and a dime, respectively one-half and one-fifth the weight of the half dollar. These silver coins are a "legal tender at their nominal value for any amount not exceeding five dollars in any one payment." The "trade dollar" is intended for the convenience of commerce with China and Japan. It is really worth in gold $1.03. Professor Sumner states that these dollars were clipped upon coming into circulation in Nevada. This was a natural result of making the coins worth more than their nominal value. The half dollar, being half the weight of the five-franc coin of France, Belgium and Switzerland, of the five-lire silver coin of Italy, and having the same weight as the new silver florin of Austria, is a step in the direction of an international system of coinage. The minor coins are a five-cent and three-cent piece, weighing respectively 77.16 and 30 grains, containing ¾ copper and ¼ nickel, and a one-cent piece, weighing 48 grains, and containing 95 per cent. copper and 5 per cent. tin and zinc. These are "legal tender at their nominal value for an amount not exceeding 25 cents at any one time of payment." It is provided that "upon the coins of the United States there shall be the following devices and legends: Upon one side an impression emblematic of liberty, with an inscription of the word 'Liberty,' and the year of the coinage; and upon the reverse the figure of an eagle with the inscription 'United States of America,' and 'E Pluribus Unum,' and a designation of the value of the coin; but upon the gold dollar and the three-dollar piece the figure of the eagle shall be omitted, and on the reverse of the silver trade dollar the weight and fineness of the coin shall be inscribed, and the motto 'In God we trust' may be added, if practicable."

Branch mints were established by the act of March 3, 1835, in New Orleans, Charlotte, N. C., and Dahlonega, Ga., commencing operations in 1838, and by the act of March 4, 1853, another branch was established at San Francisco, commencing operations in 1854. The initials O, D, C, and S, were used to distinguish the coinage of the branches, that of the Philadelphia Mint having no mark; but since the civil war no coinage has been executed at Charlotte, Dahlonega and New Orleans, and by the Coinage act of 1873 the mints at the last two places have been discontinued, that at Charlotte being retained as an assay-office. At present there are three branch mints; one at San Francisco, one at Carson City, Nev., established in 1870, and one at Denver City, Col., established as an assay-office in 1864, but styled a "mint" in the Coinage act of 1873.

There are also three assay-offices; one at Charlotte, already mentioned, one in New York, established at the same time as the San Francisco branch mint, and one at Boise City, Idaho, established in 1872. The functions of the assay-offices are the same as those of the branch mints, with the single exception of coinage. Gold and silver bullion is received on deposit, weighed, melted, assayed and refined, and returns are made either in coins or stamped bars, at the option of the depositor. The following statement was published on the 6th of October, 1875: "It appears from statistics gathered in August that the mint in San Francisco is doing about four-fifths of all the coinage of the United States. Bullion concentrates in that city, and there it is largely worked into coin. The mint, which has recently been reconstructed, is in perfect order for the large monthly business demanded."

The word "bank" was used before the Revolution simply to denote a batch of paper money, issued either by the government or a corporation. The first bank in the United States, in the modern acceptation of the term, was the Bank of North America, established in Philadelphia in 1782 (the act of Congress chartering it was passed Dec. 31, 1781), under charters both from Congress and from the State of Pennsylvania. This bank is still in existence, having been rechartered from time to time. It was originally intended to be an assistant to the government in financial matters, its plan having been devised by Robert Morris, and it rendered valuable services during the closing months of the Revolutionary war. The first Bank of the United States was established in 1791, with a capital stock of $10,000,000, of which one-fifth was taken by the government. It paid dividends of from 8 to 10 per cent. per annum; and when an attempt to renew its charter was lost in the Senate (Feb. 20, 1811) by the casting-vote of Vice-President Clinton, its affairs were settled up without loss to its stockholders. The second Bank of the United States was established by law in 1816, and went into operation the following year. The full capital was $35,000,000, of which (as in the former United States Bank) one-fifth was subscribed by the government. In 1832 President Jackson vetoed a bill for its recharter, and in 1836, its twenty years charter from the Federal government having expired, it was rechartered by the State of Pennsylvania. In 1837 and 1839 it suspended specie payments, and Feb. 4, 1840, it finally suspended, the stockholders losing everything.

Banks under State charters began to be established in 1784. In 1857 there were 1416 of such banks, most of them issuing notes, all of different designs, which rendered the detection of counterfeits an intricate art. This art is now greatly simplified by the comparative uniformity of the present paper currency, which consists of—1st. United States treasury-notes, or "greenbacks;" 2d. Fractional currency (notes for fractions of a dollar); 3d. National bank-notes. Of the greenbacks, or "legal tenders," more

than $428,000,000 were in circulation at one time, during the war, but subsequent contraction brought down the amount to $356,000,000, at which figure it stood just before the "panic" of September, 1873. The Secretary of the Treasury then reissued $26,000,000, and Congress endorsed his action by passing the Currency act of June 22, 1874, which provides "that the amount of United States notes outstanding, and to be used as a part of the circulating medium, shall not exceed the sum of $382,000,000, and no part thereof shall be held or used as a reserve." The amount of legal tender notes outstanding on the 1st of October, 1875, was $374,010,956. The authorized amount of fractional currency is $50,000,000, but the actual issue has never gone above $47,000,000, and for many years it was only $30,000,000. The amount of fractional curreney outstanding on the 1st of October, 1875, was $40,783,575.53. Of National Bank notes, which are secured by the deposit at Washington of $100,000 in United States bonds for every $90,000 issued, $300,000,000 were authorized by the Banking act of June 3, 1864, and $54,000,000 by the Banking aet of July 12, 1870. Nov. 1, 1874, 2200 National Banks had been authorized, of which 35 had failed and 127 had gone into voluntary liquidation by a vote of two-thirds of the stockholders, leaving 2028 in existence at that time. The aggregate capital was $493,765,121 (Nov. 1, 1870, it was $430,399,301). The deposits were $669,068,996 ($501,407,587 in 1870). The loans were $949,870,628 ($712,767,453 in 1870). The amount of the notes issued was $333,225,298 ($291,798,640 in 1870). The number of National Banks authorized up to September 23, 1875, was 2299. The amount of the National Bank notes outstanding on the 1st of October, 1875, was $347,863,742.

COMMERCE AND NAVIGATION OF THE UNITED STATES.

Introduction.—The people of the United States derive a great advantage from the extent and nature of their seaboard. The whole Atlantic coast-line, from Maine to Georgia, presents an infinite variety of bays, inlets, river-entrances and harbors. Many of them are capable of accommodating the largest class of vessels. There are comparatively few ports in this whole world which a ship with so great a draught as that of the *Great Eastern* is able to enter or in which she can lie securely; but she can not only enter the harbor of New York, but can lie close up to the very shore of the city. On the South there are several fine harbors in the Gulf of Mexico, and the Pacific coast-line, though not so well indented as the Atlantic, has the Bay of San Francisco, Puget's Sound and other excellent resorts for shipping. There is even a sort of coast-line on the northern boundary, for the great lakes forming that boundary are almost equal to an ocean, and have a trade of their own. In addition to coast-lines, lakes and shores, this country has the great advantage of possessing a number of navigable rivers. The Mississippi alone affords navigation to ten States—viz., Minnesota Wisconsin, Iowa, Illinois, Missouri, Kentucky, Arkansas, Tennessee, Mississippi and Louisiana. Its tributaries carry navigation in every direction through the great Mississippi valley; and there is one peculiarity of these rivers which we failed to mention in the article on Physical Geography, but which it is proper to note in this place, as it increases their value for commercial purposes. We refer to the comparatively level nature of the country through which they flow throughout the greater part of their course. The average fall of the Mississippi is only eight inches to the mile, while that of the Missouri, from Fort Benton to the junction, is ten inches to the mile, and that of the Ohio, from Pittsburg to its mouth, is only five inches to the mile. Except on its outer rim, the basin drained by the Mississippi and its large tributaries has an average fall of less than six inches to the mile. There are, therefore, no rapids to obstruct navigation, and each river is navigable as far as the depth of its stream will permit. The entire navigable length of these rivers is about 40,000 miles, according to a recent estimate; which the candid reader will acknowledge gives strong support to our assertion,

elsewhere made, that "this great river system is as valuable to the country as 10,000 additional miles of sea-coast would be." An English writer has said: "The inland navigation of America is indeed quite as important as its coast-line, for by it the very heart of the continent is touched and vast fields of produce are brought into direct communication with the seaboard and the ports of export."

Early History.—Almost as soon as the settlements in America appeared to be firmly established, Great Britain began to pursue toward the colonies a policy which was called *the colonial policy*, as if it were the only one worthy of consideration. This policy had for its object the interest and prosperity of the mother-country, without any more regard for the welfare of the colonies themselves than was consistent with the attainment of this object. It resembled the course of a father who attempts to keep his son continually under his control, who is never willing to acknowledge that said son has reached his majority, or, in common parlance, has "come of age," and who seeks to impress upon that son's mind the idea that all his labor, even though he may have been driven by harshness from the parental roof, is for the sole use, behoof and benefit of his affectionate father. Such was the policy which was not shadowed forth, but clearly defined, in the famous "Navigation Acts," the odium of which cannot be thrown entirely upon Charles the Second, for the first was passed in 1650, under the auspices of Cromwell, and it was one of the few laws of the Commonwealth which were re-enacted after the Restoration. Lord Sheffield said in his *Observations on American Commerce*, "The only use and advantage of American colonies or West India islands is the monopoly of their consumption and the carriage of their produce." In 1660, therefore, was passed "An act for the encouraging and increasing of Shipping and Navigation" [in the mother-country], in which it is enacted, "That from and after the first day of April, 1661, no sugars, tobacco, cotton-wool" [now called *cotton*, "for short"], "indigo, ginger, fustick or other dying-woods of the growth, produce or manufacture of any English plantations in America, Asia or Africa shall be shipped, carried, conveyed or transported from any of the said English plantations to any land, island, territory, dominion, port or place whatsoever, other than to such other English plantations as do belong to His Majesty, or to the kingdom of England or Ireland, or principality of Wales, or town of Berwick-upon-Tweed, there to be laid on shore, under the penalty of the forfeiture of the said goods, or the full value thereof, as also of the ship, with all her guns, tackle, apparel," etc. All vessels sailing to the Plantations were to give bonds to bring the commodities above mentioned to England. We have given the wording of this famous act that the reader may see how tightly American commerce would have been shackled by its stringent enforcement. As this, however, touched only goods *exported from America*, to carry out the

"colonial policy," in its fullest extent, another act of Parliament was passed in 1663, to prohibit the importation into any of the English colonies of any commodities of the growth, production or manufacture of Europe, *except they were laden or shipped in England, Wales, or the town of Berwick-upon-Tweed, and in English-built shipping*, with the exception of "salt for the fisheries, wines from Madeira and Azores, and all sorts of victuals from Scotland and Ireland." This merciful exception was evidently similar to the kindness of the man who allows his draught-horse plenty of "feed," though the scope of the act is, according to the preamble, "to maintain a greater correspondence and kindness between the inhabitants of His Majesty's plantations and those of the mother-country;" but the real motive crops out in the last clause of this preamble, which reads: "And it being the usage of other nations to keep their plantation trade to themselves, be it therefore enacted," etc. The effect of such enactments upon the inhabitants of His Majesty's plantations can be easily imagined. No great amount of reasoning is required to prove that the maintenance of "a greater correspondence and kindness between the colonists and the mother-country" was not likely to be secured by these fruits of the colonial policy. A trade with Portugal and Spain had already sprung up [see HISTORICAL SKETCH, pp. 94, 95], and this exhibition of enterprise, while it was doubtless one of the causes of the promulgation of these laws, was also an indication of an independent spirit which could ill brook such restraints as were imposed by the Navigation Laws. These laws gave special offence to the people of New England, of which section Sir Josiah Child, in his *New Discourse on Trade*, published in London in 1690, says, "New England is the most prejudicial plantation to this kingdom." The "frugality, industry and temperance" of the people, "the happiness of their laws and institutions," cause him great alarm by the promise which they give of prosperity for the colonies, which he cannot separate in his mind from injury to the mother-country. These virtues are commendable in themselves, yet he thinks it "the duty of every good man primarily to respect the welfare of his native country." He then becomes more specific in the statement of his grievances, or rather the grievances of the mother-country, complaining that "The people of New England, by virtue of their primitive charter, being not so strictly tied to the observance of the laws of this kingdom, *do sometimes assume the liberty of trading*, contrary to the act of navigation, by reason of which many of our American commodities (especially tobacco and sugar) are transported in New-English shipping (*sic*) directly into Spain and other foreign countries without being landed in England or paying any duty to His Majesty, which is not only a loss to the king and a prejudice to the navigation of Old England, but also a total exclusion of the Old-English merchant from the vent of those commodities in those ports where the New-English vessels trade; because, there

being no custom paid on those commodities in New England, and a great custom paid upon them in Old England, it must neeessarily follow that the New-English merchant will be able to afford his eommodity much cheaper at the market than the Old-English merchant; and those that sell cheapest will infallibly engross the whole trade sooner or later." In another account of this terrible indictment he says: "Of all the American plantations, His Majesty has none so apt for the building of shipping as New England, nor none comparably so qualified for the breeding of seamen, not only by reason of the natural iudustry of that people, but chiefly by reason of their cod and mackerel fisheries; aud, iu my poor opinion, there is nothing more prejudieial and in prospect more dangerous to any mother-kingdom than the increase of shippiug in her colonies, plantations or provinees."

Harsh as this doctrine may sound, it is a legitimate deduction from the principle upon which rest the foundations of the eolonial policy. How ineffectual was the attempt to enforce restrictions upon trade which were so contrary to the principles of natural equity, the above complaint, written thirty years after the passage of the Navigation Act of 1660, gives ample evideuce. Fifty years later another Euglish writer shows a delicaey in approaching the subject which is in noteworthy contrast with the positiveness of Sir Josiah Child. The author of *The British Empire in America* (second edition; published in 1741; p. 242) says: "How far the mother-eountry, Old England, ought to oblige her children in trade, which she can manage herself more for her own interest, though she sent these colonies abroad to plant countries to subsist by and make the most of, I will not here dispute, nor under what obligation the New England people ought to be put [by legal enactment] to preveut their sending their goods to the best market, and to make use of that iu Englaud, good or bad. There's a great deal to be said on both sides of the question; and since it cannot be discussed without giving offenee in Old England or New England, and perhaps iu both, I shall leave it as I found it, unless I had a better call to explain it, without officiousness, impertinenee or whimsy." If the ministers of George II. and George III. had been as anxious as was the writer just quoted to steer clear of "officiousness, impertinence and *whimsy*," especially of the last-named article (of their possession of which in abundant measure their conduct gave ample proof), perhaps the Revolution might have been iudefinitely postponed. A cabinet-minister of George IV., Huskissou, the friend and colleague of Canning, was of the opinion that the real causes of the Revolution are to be found, not merely in the irritating measures which followed Mr. Grenville's plan of taxation [see Historical Sketch, pp. 98, 99], but in the long-cherished diseontent of the eolonies at this system of legislative oppression. He said also, in his speech on the colonial policy of the country delivered in Parliament

March 21, 1825, "From all the experience which we can collect from the conduct of this country in respect to its colonies—from all that we witness of what is passing in the colonies of other States—I come to this conclusion: that so far as the colonies themselves are concerned, their progress is cramped and impeded by the old system of exclusion and monopoly, and that whatever tends to increase the prosperity of the colonies cannot fail, in the long run, to advance in an equal degree the general interests of the parent-state." Whence had Mr. Huskisson obtained these enlightened views? We answer, without hesitation, from the careful study of the history of our Revolution and of the Declaration of Independence. In proof of this assertion we offer the following extract from another portion of the same speech: "At any rate, let us, as the parent-state, fulfil our duties with all proper kindness and liberality. This is true wisdom, affording us on the one hand a solid and lasting connection, and on the other the best hope, *if (which God avert!) in the progress of human events* that connection is ever to be dissolved, *that the separation may not be embittered by acrimony and bloodshed;* and the certain consolation that, however brought about, it will not have been hastened or provoked by vexatious interference or oppressive pretensions on our part." The portions of this extract which we have italicised and the concluding clause tell their own story. The opening words of the Declaration of Independence were evidently in his mind, together with the specifications contained in that terrible indictment brought in by a free people against a tyrannical king.

Each section of the country had its own peculiar sufferings to undergo. In Virginia, for instance, where the staple product was tobacco, a duty was imposed which amounted to eight pounds upon a hogshead containing four hundredweight, which, when the "charges" are added, brought it up to about sixpence a pound.* The author of *The British Empire in America*

*Our readers can form some idea of the difficulty in obtaining accurate figures when they learn that, although the oppressiveness of this duty is complained of in several histories, the *precise amount* was ascertained only by hours of labor. It is given in none of the ordinary authorities, previous writers having probably met with the same difficulty which we experienced in endeavoring to secure accuracy. After a long and tedious search through general and local histories, we met with a work bearing the following promising title: *An Historical Account of all Taxes, under what denomination soever, from the Conquest to the Death of King George the First; London*, 1733. From this work we learned that to James II., at the time of Monmouth's rebellion, was granted, "Upon every pound-weight of tobacco imported into England or Wales, or the town of Berwick-upon-Tweed, of the growth and production of any of His Majesty's plantations, islands or territories in America, three pence above what it then paid." Now, this would be a very valuable statement, provided only that we knew how much "it then paid;" but the *Historical Account* nowhere informs us. Having deluded us with false hopes, it leaves us in a condition little if any better than that in which we were before consulting its pages. At length, in another old book, we found the full amount of the duty, viz., five pence, which, with the

is somewhat more outspoken in his condemnation of this imposition than in his remarks on the navigation laws. He says: "In the year 1685 that severe duty which has so long loaded tobacco had been the occasion of selling many thousand hogsheads *at twelve pence a hogshead*, rather than pay the custom and charges imposed on this commodity three months after King James' coming to the crown. This imposition is the original cause of all the straits and hindrances in trade and circumstances which the Virginians groaned under above fifty years. 'Tis amazing to consider that a commodity worth, when it grows, a half-penny a pound, should have subsisted so long, above half a century, under the weight of an imposition more than ten times the value of the prime cost. This duty has raised above twenty millions sterling since it was first imposed. It was obtained when the Parliament were in a warm fit of loyalty, just on the Duke of Monmouth's landing." He says in another place, speaking of the hardships caused by these heavy duties: "If it [the article exported] wants in goodness, there is no abatement for it—no consideration for high freights and premiums of insurance, for a small crop, the dearness of hands, and other accidents which may prove the ruin of this plantation [Virginia]; for when his goods come to market, after custom and the factor's bill for commission is paid, the net proceed comes to little. The poor planter is not only disappointed in the value of his goods, but the bills that he drew come back protested, and he is forced to pay exorbitant interest to prevent being sued, or to sign judgments to the merchant there [in England], who, having got the least hold upon his estate, feeds him insensibly with money until the whole follows at a mean rate. If this fate does not attend his bills, he is forced to buy the necessaries at home, at dear rates, which he wrote for to England; and if he goes upon trust, it is at such prices that a usurer blushes to extort; custom makes it look like lawful." We have given these remarks, written in 1741, to show the results of the colonial policy, and also to give an idea of the impression made by this system of extortion upon the mind of at least one candid Englishman, whose opinions were evidently far in advance of those of his contemporaries. The effect upon commerce with the mother-country of the paper currency of New England is thus described by the same author: "As to money, they have none, gold or silver. About fifty years ago they had some coined at Boston, but there's not enough now for retailers. All payments are in province-bills, even as low as half a crown; thus every man's money is in his pocket-book. This makes the course of exchange so exorbitant that £100 in London made out lately [he writes in 1741] in New England £225; and

charges then made, would easily swell the sum-total to the figures given above. The eight pounds mentioned by the author of *The British Empire in India*, as the duty on "a hogshead containing four hundredweight," is simply a round number, the precise amount being (before the "charges" are added) £8 6*s.* 8*d.*

if a merchant sells his goods from England at £220 upon £100 in the invoice, he would be a loser by the bargain, considering the incidental charges upon his invoice.

Navigation laws and such heavy impositions as those which we have just described could have but one effect upon a free people jealous of their liberties. The obnoxious enactments were generally resisted by the colonists as an encroachment upon their rights. Ineffectual attempts were made for a century to enforce them, and during the struggle the seeds of the Revolution were sown. It is very difficult to ascertain with accuracy the trade of the colonies before 1776, on account of the constant evasion of the revenue and navigation laws, which were felt to be both unjust and oppressive. When smuggling is both profitable and patriotic—moreover, when it can be carried on with comparative impunity—it is not difficult to find people to engage in this fascinating pursuit. The records of the custom-house, therefore, do not furnish a reliable account of the whole trade of the colonies; but as no registers of the smuggling operations which were carried on during the colonial period are extant, the custom-house books remain as the best source of information. From these the tables given by Lord Sheffield are probably taken, and from one of these tables, as given by Pitkin, we learn that the annual average of exports and imports to and from Great Britain for each of the eight decades from 1700 to 1780 was as follows:

AVERAGE FROM	EXPORTS TO GT. BRITAIN.	IMPORTS FROM GT. BRITAIN.
1700 to 1710	£265,783 10*s.* ($1,328,517)	£267,205 3*s.* ($1,336,025)
1710 to 1720	£392,653 17*s.* ($1,963,269)	£365,645 6*s.* ($1,828,226)
1720 to 1730	£578,830 16*s.* ($2,894,154)	£471,342 12*s.* ($2,356,713)
1730 to 1740	£670,128 16*s.* ($3,350,644)	£660,136 11*s.* ($3,300,683)
1740 to 1750	£708,943 9*s.* ($3,544,717)	£812,647 13*s.* ($4,063,238)
1750 to 1760	£802,691 6*s.* ($4,013,456)	£1,577,419 14*s.* ($7,887,095)
1760 to 1770	£1,044,591 17*s.* ($5,222,959)	£1,763,409 10*s.* ($8,817,047)
1770 to 1780	£743,560 10*s.* ($3,718,802)	£1,331,206 1*s.* ($6,656,030)

The *amount* of exports or of imports for any one of these decades can be found, of course, by multiplying the sum given in the above table by ten. We have rejected the pence in giving the figures in the English denomination, as well as fractions of a dollar in reducing the various amounts to a shape somewhat more convenient for the inspection of an

American reader. It is important to remember that a given sum of money was worth more in the eighteenth century than at the present day; also that the custom-house valuation is always more likely to be under rather than over the true value of the goods. Five dollars have been reckoned to the pound—a near enough approximation, especially as the table is given mainly for the purpose of *comparing* the amount of exports and imports with each other, and the amount at one time with that at another. The imports from Great Britain during the whole eighty years amounted, according to this record, to £72,490,125 ($362,450,625), and the exports to that country during the same period to £42,070,835 18*s.* ($210,354,179). This shows a heavy balance of trade in favor of the mother-country. The question then arises, How was this balance made up? for made up it must have been, in "gold or its equivalent." Materials upon which to base a judgment are meagre; but judging from those within reach, we are inclined to the opinion that the requisite funds to satisfy John Bull's claim were derived from that commerce with the Mediterranean which so grieved the patriotic soul of Sir Josiah Child. In 1769, for instance, there are the following returns of—

EXPORTS FROM THE COLONIES.

	£ s. d.
To Great Britain	1,531,516 8 6 ($7,657,782)
To the West Indies	747,910 3 7 ($3,739,550)
To the South of Europe	552,736 11 2 ($2,763,682)
To Africa	20,278 5 1 ($101,391)
Total	£2,852,441 8 4 ($14,262,207)

IMPORTS INTO THE COLONIES.

	£ s. d.
From Great Britain	1,604,975 11 11 ($8,024,877)
From the West Indies	789,754 4 5 ($3,948,771)
From the South of Europe	76,684 9 11 ($383,422)
From Africa	151,998 0 0 ($759,990)
Total	£2,623,412 6 3 ($13,117,061)

For this year, therefore, when the commerce with the South of Europe is thrown into the scale, the balance of trade is in favor of the colonies. This was probably the case generally, for the colonies increased in wealth and prosperity, which could not have been the result of years of traffic if the balance had been continually against them at a time when the home-

production of the precious metals was unknown. The difference between the amount of exports to and imports from the South of Europe had to be settled with hard money, and the nature of the coins which were freely circulated in this country before the Revolution, and, indeed, until a comparatively recent date, is additional proof of the correctness of our theory. Mention of the Portuguese "half-joe" will be found elsewhere [see COINS AND CURRENCY, p. 405]. In *The British Empire in America*, among the coins current in the colonies we find "Spanish doubloons, pistoles, pieces-of-eight [dollars] and Arabian chequins," which appear in the *Arabian Nights* as "sequins." When the Continental Congress promised to pay to the holders of their money "Spanish milled dollars," they promised to pay in a currency well known in America; and although much of it may have come from the West Indies, the commercial statistics just given show another route by which some of these coins may have come. It is true that a large portion of this profit went into British pockets, but not all; and the extent of this trade is one of many proofs that the Navigation Act—though Sir Josiah Child had said, "I am of opinion that in relation to trade, shipping, profit and power it is one of the choicest and most prudent acts that ever was made in England"—could not entirely shackle the proper course of legitimate trade—*i. e.*, of trade legitimate by the law not of parliaments but of natural equity.

Such, then, was the commerce of the thirteen original colonies during the first eight decades of the eighteenth century. The value of money has changed, as we have already observed, but it has probably not more than doubled. Many imported articles are cheaper than they were eighty or a hundred years ago, and the average price of many others is but slightly increased. Tea, for instance, was quoted at Philadelphia on the 5th of November, 1790, at 75 cents a pound for Souchong, and one dollar for Hyson. If the reader will examine the current price of tea at the time when he reads these words, he will probably find lower prices than those given above, rather than higher, though we do not undertake to state which variety will at that time be preferred by the public, or, at least, will bear the higher price; for several changes have been made in that respect during the past fifteen years, owing either to the capriciousness of the consumers, or to the relative abundance or scarcity of the crops, or to a combination of these causes. The total exports or imports of the United States for one year at the present day will be found to exceed in *nominal* value the exports or imports of the whole eighty years in the above table; and if we take the sum for two or three years, the *real* value will probably be greater than that of the whole trade of the colonies with every country during the period named. This wonderful prosperity is not what was expected at the close of the Revolutionary war by the majority of the people of Great Britain. Gloomy prophecies were freely

made with reference to the future of the colonies, based upon the folly which they had shown by withdrawing themselves from beneath the protecting care of the navigation acts. It was a natural result of the course pursued by the patriots in attaining independence that such prophecies should be made; for when the colonists desired to make an impression upon the mother-country they first made free use of petition, of remonstrance and of appeal, but when those measures failed they formed non-importation associations, knowing that anything which would affect the trade of Great Britain unfavorably would be a severe blow. These were at first local; but even a partial adherence to this plan of attack was found to be so beneficial that when the First Continental Congress met at Philadelphia their attention was immediately given to this important matter. As Mr. Everett says, "They began with a non-importation agreement nearly two years before the Declaration of Independence. This agreement, with the exception of the addresses to the people of America and Great Britain, was the only positive act of the First Congress that met at Philadelphia in 1774, and is signed by every member of that body. The details to which it descends are full of instruction." Though we have been obliged to give some of these details elsewhere [see AMERICAN MANUFACTURES], we present here a fuller summary, in which some matters will be found repeated, and others, which belong properly only to the province of manufactures, are omitted. These fourteen articles, "under the sacred ties of virtue, honor and love of country," pledged the members of the Congress and their constituents "not to import, after the 1st of December, any goods whatever from Great Britain or Ireland, or British goods from any place; not to import or purchase any slave imported after that time, after which they would wholly discontinue the slave-trade; not to import or purchase East India tea; to request merchants, as soon as possible, to order their factors in Great Britain not to ship any goods to them on any pretence whatever; to discontinue and discourage every species of extravagance and dissipation, shows, plays, etc.; to use on funeral occasions only a ribbon or piece of crape on the arm for gentlemen, and a black ribbon and necklace for ladies, and to discourage the giving of gloves, scarfs, etc., at funerals; it recommended vendors of goods not to take advantage of the scarcity occasioned by the association to ask more than they were accustomed to do; that goods imported after the 1st of December ought to be either reshipped or stored at the owner's until after the non-importation agreements ceased, or be sold and the owner reimbursed the first cost and charges, the profits to be devoted to the relief of the Boston sufferers; that committees should be chosen in each county, city and town to carry out the resolutions and report violations, and that the Committees of Correspondence should frequently inspect the custom-house and inform each other of the state thereof; that all manufactures of the

country should be sold at a reasonable rate, and that no trade, commercial dealings or intercourse should be had with any colony or province which did not accede to or should afterward violate the agreements, but they should be held unworthy the rights of freemen, and as inimical to the liberty of their country."

These stringent resolutions met with the unanimous approval of the people, and committees of vigilance were formed in the several towns and districts, "who published the names of those who did not carry out these regulations as enemies of public liberty." All business dealings with them were suspended, and resolutions similar to those of Congress were adopted by twelve out of the thirteen Continental provinces, while all the suggestions of what might almost be termed the *National* Assembly were acted upon with strict fidelity to its directions. Ten of the colonies were soon afterward interdicted by Parliament from all trade except that from which they had voluntarily excluded themselves. The remaining provinces (New York, North Carolina and Georgia) were excepted from the restraints which were imposed upon all the rest. The governor of North Carolina had held out to the administration the hope of retaining North Carolina in obedience through a part of her own people—the Highlanders of the old forty-seventh regiment—who had settled there; but the utmost efforts of emissaries sent over to America could not entice them to the royal standard. The Assembly of New York, by a majority of four, refused to forbid importations, and this was accepted as a conclusive proof that the province would adhere to the king. The royalists were again mistaken. The press of the patriots taunted those who had declined to support Congress for taking gifts; and when they would have permitted a ship to discharge its cargo, the committee which had been appointed to carry out the resolutions of Congress laughed at their vote and enforced the association. The New York merchants who furnished supplies to the British army at Boston were denounced at the liberty-pole as enemies to their country. When Rivington's *Gazette* quoted texts of Scripture in favor of passive obedience, Holt's *Journal* replied by other texts and examples.

It is difficult for us, at the present day, to realize the sweeping effect of the measures adopted by Congress upon the commerce of the colonies. Cut off from importation, and without an adequate supply of goods from the products of home manufactures, the American merchant was indeed in a deplorable condition. How long patriotism, unaided by the excitement of war, would have availed to restrain even those who were on the side of liberty from breaking these rules it is equally difficult to determine, nor is it necessary for our purpose. The battles of Lexington and Bunker Hill—the Declaration of Independence—the hand-to-hand struggle to make that Declaration valid and to secure for Columbia a place in the family of nations,—these intervened, and that which had been begun in

the interests of patriotism was continued from dire necessity. Add to all other troubles those caused by a depreciated currency, and the outlook of those engaged in trade in this country during the Revolutionary war seems indeed gloomy. Still, they were not dismayed. Here and there one was found who (thinking that the royal rule would be comparatively peaceful and stable) gave aid and comfort to the enemies of freedom, or, worse still, who speculated upon the distresses of his country, and sought to draw from the Continental treasury, never too well replenished, "prices that a usurer blushes to extort;" but the majority of the merchants of America were true to themselves and to their country during the time that tried men's souls, and the privations which they endured, if fully chronicled, would doubtless furnish instances of heroism equal to any recorded of those who went into the field.

Lord Sheffield's *Observations on American Commerce.*—The chief spokesman for those who considered the commerce of America ruined by the achievement of independence was one of those officious friends who delight in making croaking prophecies, and whose greatest delight is to see such prophecies fulfilled. We refer to Thomas Holroyd, afterward Lord Sheffield, who published in 1783 a pamphlet entitled *Observations on the Commerce of the American States.* From this book, as it is comparatively rare, we shall now make some extracts which will give the reader an opportunity to judge of the effect of passion and prejudice upon the minds of a people whose boast it is that they are "lovers of fair play." We say *of a people*, for Lord Sheffield's work was considered by the British people generally as an unanswerable combination of facts and of reasoning. Coxe, at the beginning of his reply, says: "The facts and observations of this writer have, in the opinion of many of his countrymen, so firmly endured the touchstone of experience that an attempt to demonstrate errors in both may appear to deserve little attention." He evidently felt that he was addressing a jury whose minds were completely biassed by the arguments of the prosecuting attorney.

In the very first sentence of his plea, Lord Sheffield complains that the Navigation Act itself, the guardian of the prosperity of Great Britain, had been "almost abandoned by the levity or ignorance of those who have never seriously examined the spirit or consequence of ancient rules. By asserting their independence the Americans have renounced the privileges as well as the duties of British subjects. If in some instances, as in the loss of their carrying trade, they feel the inconvenience of their choice, they can no longer complain. The British merchant alone is able and willing to grant that liberal credit [to the Americans] which must be extorted from his competitors by the rashness of their early ventures. They will soon discover that America has neither money nor sufficient produce to send in return, and cannot have for some time; and not intending or

being able to give credit, their funds will be exhausted, their agents will never return, and the ruin of the first creditors will serve as a lasting warning to their countrymen. The solid power of supplying the wants of America, of receiving her produce and of waiting her convenience belongs almost exclusively to our own merchants." Our author then takes up particular articles of export and import, in treating of which he is obliged to make some humiliating admissions, as, for instance, the following: "As to woollens, at present, we have lost the clothing of the Russian army by abuses in the manufacture, *especially by overstretching the cloth*, the consequence of which is shrinking extremely when worn." This admission agrees with the assertion of Bingham, "It is well known that many of the coarse kinds of stuffs made at Norwich, Coventry, Spitalsfields and other [British] factories are shamefully deficient in length, whilst the Dutch, Flemish and French usually give a generous surplus in their measures." The reader will also be reminded of the recent developments with reference to the measure of spool-cotton at Manchester, England, and the statement of a correspondent of a Manchester newspaper that it was impossible, on account of the "tricks of the trade," for a man to be a consistent Christian and to be at the same time successful in carrying on any branch of the manufacture of cotton goods at Manchester. A recent writer cites another case in point, as follows: "The Lancashire cotton manufacturers often used an inferior cotton staple, and worked in large quantities of clay to give body to the goods. Of course the clay came out with the first washing; and at length the natives of India, learning wisdom from being continually cheated, refused to buy any goods of English make. The loss of the whole East India trade was threatened. The *London Times* sounded the note of warning, not on the ground of pity for the victims who had thus spent their hard earnings for a useless article, but on account of the sacrifice which would be involved in the loss of the trade."

Speaking of wines, his lordship says: "Every attempt to make wine in America has failed. The great heat and rains are supposed to cause such a luxurious vegetation that the grapes burst before they are ripe." In a note to the second edition he adds: "Others say that the trials have not been fair; that there have been no attempts to plant vineyards and to make wines except by private gentlemen for their own consumption; and that the reason why the people have not attempted to make vineyards is *because the ground with easy cultivation produces an immediate profit*, and it takes six or seven years to bring a vineyard to yield any considerable profit." The italics in the above quotation are ours, and we shall have occasion to refer to this statement hereafter. Speaking of "Geneva," he says: "This article is in less demand than brandy, and will be imported from Holland. *It may soon be made in America, being distilled from rye.*"

The point concerning which Lord Sheffield shows the greatest anxiety

is the credit of the Americans. In the midst of his enumeration of commodities he stops to say: "The American States are in greater want of credit at this time than at former periods. The French who gave them credit are all bankrupts. French merchants in general cannot give much credit; many principal commercial houses in France have been ruined by it. The Dutch have not trusted the Americans to any amount, and will not. It is not their eustom to give credit but on the best security. It is therefore obvious from this and the above state of imports into what channels the commerce of the American States must inevitably flow, and that nearly four-fifths of their importations will be from Great Britain directly. *Where articles are nearly equal, the superior credit given by England will always give the preference,* and it is probable that many foreign articles will go to America through Great Britain." In other words, this country was entirely at the mercy of England on account of the lowness of our credit elsewhere. We should be obliged to thankfully take "on trust" whatever the generous British merchant would graciously condescend to sell to us, without examining too closely the quality or (in anything stretchable, as, for instance, woollens) the quantity of the goods. He then takes up the trade in flour and wheat, stating with evident satisfaction that, "excepting the instance of three or four years, there never was any market in Europe for the wheat and wheat-flour of America, except in Spain, Portugal and the ports of the Mediterranean." From Canada, in 1774, "vast quantities of both winter and summer wheat were exported, not less than five hundred thousand bushels." Within seven years after the publication of these remarks, in the very first return made after the adoption of the Federal Constitution, appears the item of 1,124,458 bushels of wheat exported from the United States during a period of less than fourteen months, extending from some day in August, 1789, to Oetober 1, 1790. His lordship's attention is now turned to the tobacco-trade. This was a sore subject for the meditation of the British merchant, for before the Revolution "this capital article was exported from Virginia and Maryland to Great Britain only, where [after paying to His Majesty a heavy duty] it was sorted and re-exported unmanufactured, except a small quantity. The exportation now being free to every part [much to the disgust of the British merchant], it remains to be determined by experience whether it be more advantageous to transport it to every country where it is consumed, or to carry it first to one general market to meet the purchasers. America will not afford her tobacco so cheap to France as the latter got it through British contractors before the war." The annoyance which will be caused to the French by the fulfilment of this prophecy gives the patriotic Sheffield great delight. He adds, in a note: "France will be very much disappointed. The cultivation of tobacco has been greatly interrupted, and it will never be so great as it has been. There has been and

will be a considerable emigration from the tobacco country. The lands wear out. Better land beyond the mountains may be got very cheap and free from taxes. Other kind (*sic*) of farming is preferred." Having thus settled the affairs of Maryland and Virginia, he turns his attention to New England, manifesting that kindly interest which is apparent in every portion of this pamphlet. "It is difficult to see what advantage the New England States will derive from the independence and separation from this country. Such lights as we have point out that it must be ruinous to them, and that nothing could be more to their advantage than to become again part of the empire. It is not obvious where they will find a market for their shipping, lumber and the produce of the whale-fisheries (and they had no other trade of any consequence except salt fish) in the place of the markets of the West Indies, Great Britain and Ireland." A little further on, "such lights" as his lordship possessed are brought to bear upon the matter of salted meats, butter, etc. Before the Revolution, "No quantity of beef was exported from any colony but Connecticut. There is but little in Virginia. The beef in the provinces south of Pennsylvania is not good. Connecticut supplied more than all the other American States. *The banks of the Ohio and Mississippi may in future supply beef for exportation*, and Vermont also, but principally through Canada. American beef does not keep so well as the Irish. Salt hardens it and eats up the fat. As to pork, the Carolinas raise such a prodigious quantity of hogs, and can feed them at so little expense, that pork may be afforded there one-third cheaper than from England or Ireland. Not long since butter was imported into New York from Ireland; but before the [Revolutionary] war began New York exported butter to the West Indies. However extraordinary it may appear, it is, however (*sic*), true that notwithstanding tallow is the natural produce of the Northern States of America, it has been and may be exported from Russia and sold as cheap as that raised in the country, leaving a considerable profit to the importer." Yet, in the return of exports to which we have already had occasion to refer, we find entered, "Beef, 44,662 barrels; value, $279,551; butter, 8379 firkins; value, $48,587; tallow, 200,020 pounds; value, $20,722." "Peas, which may be made a substitute for rice or Indian corn, are cheaper in Canada than in any part of the American States, where they are only raised in the province of New York and in the Jerseys. Though perhaps there may not be a sufficient quantity raised in Canada to supply any great demand at present, there may be soon. There is no bug in that country; but peas planted in other parts of the continent except about Albany are devoured by bugs or flies." How correct this statement was can be seen by an examination of the return of exports from the United States for the year ending September 30, 1791. New York exported one-sixth of the whole quantity of peas and beans (which are put together), New Jersey *none*,

and Virginia furnished more than twice as much, and North Carolina nearly twice as much, as New York.

His lordship took it for granted that Florida, Louisiana and the country west of the Mississippi would never belong to us, and says: "Those who have been disposed to despond may comfort themselves with the prospect that if the American States should hereafter be able to manufacture for themselves, as the consumption of the manufactures of England decreases with them the demand will increase elsewhere. *They* [the despondent British merchants] *will for ages* go up the Mississippi and river St. Lawrence, and by means of a most extraordinary inland navigation supply regions infinitely greater and more fertile [our present Western States] and capable of a greater degree of population than the American States, full of rivers navigable to their source—a country four times as large as the American States [which has been] most unnecessarily and most illegally given up [by Great Britain], and most unexpectedly by the Americans themselves, which Congress *neither has been nor will be capable of controlling, and which, probably, will divide into many independent governments.*" He now speaks of emigration: "If manufacturers should emigrate from Europe to America, at least nine-tenths will become farmers; they will not work at manufactures when they can get double the profit by farming"—in a country, be it remembered, where "the ground with easy cultivation produces an immediate profit;" and yet our author says: "The emigrants from Europe to the American States will be miserably disappointed; however, having got into a scrape, they may wish to lead others after them. When the numberless difficulties of adventurers and strangers are surmounted, they will find it necessary to pay taxes, to avoid which, probably, they left home, and, in the case of Britons, gave up great advantages. The absolute necessity of great exertions of industry and toil added to the want of opportunity of dissipation in the solitary life of new settlers, and the difficulty and shame of returning home, alone support them there. They find their golden dream ends, at most, in the possession of a tract of wild, uncultivated land, subject, in many cases, to the inroads of the proper and more amiable owners, the Indians." Having thus used his best efforts to check the tide of emigration, his lordship has a plan or two to offer for the benefit of the despondent British merchant: "If we adopt Russia in place of our revolted colonies, and give her products the advantages we allowed to theirs, she can be of infinitely more use to us than they ever were. She will cost us much less. She will also pay for what she takes in half the time. *The long credit given in America ruined our trade with that country, and made bankrupts of almost three-fourths of the merchants of London trading in America.*" Why, then, should the British merchant feel despondent at the loss of so risky a trade? Why should his lordship take so much trouble to revive the drooping spirits of his

countrymen if he could say with truth, as he does elsewhere, "Almost every article of the produce of the American States which is brought into Europe we may have at least as good and as cheap, if not better, elsewhere. Both as a friend and an enemy, America has been burdensome to Great Britain. It may be some satisfaction to think that by breaking off rather prematurely Great Britain may find herself in a better situation with respect to America than if she had fallen off when more ripe." How kind of his lordship, then, to offer still another plan! "The fixing on certain ports in Great Britain where the produce and merchandise of the American States may be stored until a sale can be made of them in Great Britain or in some other ports of Europe. By this the British merchant will have the first offer in the sales, and the American, without running the risk or incurring the expense of going from one port to another, will be at all times sure of the best market to be had in Europe." This project gives great satisfaction to the philanthropic Sheffield, who promises, in case of its adoption, that "the American commerce, especially for the most necessary and the most bulky articles, would in a great measure centre in this kingdom, and the merchants in America, not being able to make remittances in advance, but, on the contrary, obliged to go in great part on credit, *being able thus to deposit their effects at the disposal of their correspondents*, at the highest market which can be had in Europe, it will be a very essential advantage to the American merchant and a security and inducement to the British merchant to answer the American orders for goods." The interests of the British merchant are certainly not neglected in the above scheme!

Such were the *Observations on Commerce* of Thomas Lord Sheffield, in which an attempt is made by their noble author to convince both himself and his countrymen that commerce with America was of no great value, and yet that Great Britain would secure the best part of it; that the population of this country was rapidly decreasing; that the bond of union by which the United States were held together was so weak that no treaty could ever be made except with the separate States. We are forced to make another extract which signally shows his lordship's weakness when he attempts to prophesy: "It is not probable that the American States will have a very free trade in the Mediterranean. It *will not be the interest of any of the great maritime powers to protect them there from the Barbary States.* If they knew their interests, they will not encourage the Americans to be carriers. That the Barbary States are advantageous to the maritime powers is obvious. The Americans cannot protect themselves from the latter; they cannot pretend to a navy. *It is remarkable how few good harbors there are for large ships in the American States—at least we have found none except at Rhode Island;* and if a navy could be afforded, there would be much difficulty in agreeing that so essential an

establishment should be at Rhode Island." The remark with reference to the Barbary States is especially rich. "The American States" gave the pirates of the North African coast their first lesson in international law, about twenty years after Sheffield wrote these words, by means of those skilful teachers Commodore Preble, Captain Bainbridge, Lieutenant Decatur and Captain William Eaton, at a time when the "great maritime powers" paid not one cent for defence, but thousands for tribute. The strictures upon American harbors require no comment; but we feel sure that the British soldiers and sailors who had visited the harbors of New York, Philadelphia and other ports on the Atlantic coast took these statements with a large grain of salt.

We give from a recent writer a somewhat different account of the value of American commerce during the period to which Sheffield refers, and of the reputation of American merchants for probity and fair dealing. In describing the temporary effects of the Revolutionary war, he says: "The flourishing commerce of the colonies was totally ruined. This Mr. Burke characterized as out of all proportion beyond the numbers of the people, that with the mother-land being within less than £500,000 of equalling what England had carried on at the beginning of the century with the whole world. He cites the case of Pennsylvania, which in 1704 called for only £11,459 worth of British commodities, but in 1772 took nearly fifty times as much, or £507,909 worth, nearly equal to the exports to all the colonies together at the first period. The colony trade of Great Britain had increased from one-sixteenth to nearly one-third of the whole. The importations were particularly heavy in 1770 and the three following years, and amounted, as Mr. Glover stated to the House of Commons in 1775, to ten and a half millions sterling in the three years, or three and a half millions at the annual medium. He estimated the linen sent from Great Britain and Ireland to amount to £700,000 per annum. The importations in the foregoing years exceeded the wants of the colonies, and through the embarrassments thereby created the debts of the American merchants, who bought largely on credit, were not so promptly paid when due as they had been in previous years. The indebtedness of New England was stated at near one million sterling. The colonies were in consequence charged in some quarters with a desire to evade payment—a charge which was refuted by the testimony of merchants in the colonial trade (*at the bar of the House*) and by the subsequent good faith of American merchants. *Of six millions due in December*, 1774, *four millions were paid in the next twelve months, even when a separation seemed inevitable*, although the restraints upon their trade and fisheries were certainly not calculated to facilitate payment." These facts were doubtless well known to Lord Sheffield; but as he was writing a special plea, he preferred to disregard them, knowing well that prejudice and passion would obtain a hearing for

anything which, if believed, would serve to console his country for the loss of the fairest portion of "The British Empire in America."

What induced Lord Sheffield to take so much pains to misrepresent the condition of the youthful nation? It is true that the Revolutionary war had annihilated, for the time being, the commerce of the former colonies. Their shipping was nearly destroyed, public credit was impaired, a vast debt had accumulated; but our author is not satisfied with a statement of these facts. He goes out of his way to make many specific assertions, which were not only incorrect, but so utterly wide of the mark that no one who was at all acquainted with the resources of this country could give them credence for a single moment. The answer to this question is near at hand. "The Right Honorable William Pitt, late Chancellor of the Exchequer," had introduced into Parliament a bill "for the provisional establishment and regulation of trade and intercourse between the subjects of Great Britain and those of the United States of America." This bill, if it had become a law, would have given this country the legal assurance of ordinarily fair treatment, which was more than Lord Sheffield, *née* Thomas Holroyd, could endure. He says: "This country has not found itself in a more interesting situation. It is now to be decided whether we are to be ruined by the independence of America or not. The Navigation Act gave us the trade of the world. If we alter that act by permitting any state to trade with our islands, or by suffering any state to carry into this country any produce but its own, we desert the Navigation Act and sacrifice the marine of England. But if the principle of the Navigation Act is properly understood and well followed, this country may still be safe and great."

Replies to Sheffield.—The first reply to this pamphlet appeared in 1783, the same year in which the *Observations, etc.*, were published. William Bingham, of Philadelphia, who, during the war, had been the agent of Congress at Martinico, and who was therefore thoroughly conversant with the West India trade, took up his pen in defence of the newly-emancipated colonies. Not satisfied with a masterly refutation of special points, he attacks the foundation upon which Sheffield's whole superstructure rests—viz., the jarring interests of the various States, which would make a lasting union impossible. Let the reader remember what Bingham wrote at a time when the warmest friends of America were anything but hopeful concerning her future, and he will appreciate the bravery and the far-sighted sagacity of the following prophetic words, written nearly six years before the adoption of the Federal Constitution: "The States, from a sense of common danger and common interest, will more closely unite together and form one general system of exclusive navigation in regard to Great Britain, established on clear, equal and determinate principles of commercial retaliation, which will rapidly pervade the whole Union. Already

has a generous competition begun to take place betwixt them which shall most cheerfully adopt and carry into effect those wise and salutary measures recommended by the grand council of their country in order to make their federal union respectable and the United States as prosperous in peace as they have been glorious in war. . . . He reasons as if the trade of America must irresistibly be confined to its former channel, whereas I can assure him that, freed from the control of your Navigation Act, it will expand itself as far as seas can carry or winds can waft it. He forgets the energy of this young country that he is devoting to such humiliating restrictions; he forgets that it exhibited whilst in its cradle such marks of firmness and vigor of constitution as, like young Hercules, to crush the serpent that wantonly attacked it." Another answer was published in 1793, written by Tench Coxe, also of Philadelphia, who was then assistant-secretary of the treasury. The adoption of the Federal Constitution had intervened, and an opportunity had been recently given, for the first time since the acknowledgment of the independence of the United States, to ascertain the amount and nature of the exports and imports of this country. The returns were necessarily imperfect, and of course, as the collection of customs, etc., was a new thing for the *federal* government, and the machinery by means of which a full and correct return could be secured was not yet in operation, the totals in this return were rather below than above the real figures. Still, the result was gratifying to all friends of the young republic. We have several times referred above to these returns, and can only say at present that the number of the instances in which the surmises or misrepresentations of Lord Sheffield are directly contradicted by the facts is very large indeed. While it is true, as Webster said, that the Federal Union "had its origin in disordered finance, prostrate commerce and ruined [national] credit"—while it is true, as he continues, that "under its benign influence these great interests immediately awoke as from the dead and sprang forth with newness of life"—the very first return, made at a time when the benefits derived from the Union could scarcely be expected to appear, exhibits the recuperative power shown by the American people during the seven years of peace which were occupied in fusing together the somewhat heterogeneous elements which had previously been held together only by their ardent love of liberty and by the common danger to which they were exposed during seven years of war. The value of the exports of the United States during the year ending September 30, 1791, was, according to Coxe, $18,399,202, and according to Pitkin, $19,012,041. This amount exceeds by nearly two millions of dollars the value of the exports of all the British continental colonies in 1770, including the islands of Newfoundland, the Bahamas and Bermuda. The position of Mr. Coxe gave him special facilities for obtaining correct information, of which advantage he evidently made ample use. Between

the years 1776 and 1789 the difficulty of obtaining correct statistics was increased by the fact that the foreign articles which one State admitted free of duty were in many instances dutiable in another State, and smuggling from one State into another was, of course, an easy matter. Still, the early history of American commerce is full of interest. We have now reached a point where firmer footing can be found, while tracing the marvellous development of the commerce of the infant republic. The very fullness, however, of the information at hand renders the task of condensing it more difficult for each successive year. A tabular statement of the cotton production and trade for 49 years, and of the exports and imports of the United States for each fiscal year from 1790 to the year ending June 30, 1875, will be found elsewhere [see APPENDIX, TABLES VI., VII.]. The exports and imports of leading agricultural products have been noted in the special article upon AMERICAN AGRICULTURE. Sir Morton Peto, taking the returns of exports and imports from 1844 to 1860, seems especially struck with the facts that the trade of the United States has been steadily and regularly progressive, and that the nation has uniformly paid its way, the exports in almost every year having exceeded the imports and the general balance being in favor of America. Going back of this year and bringing into the account the tonnage of the mercantile marine [see TABLES I., II., III.], a remarkable advance is seen in the registered tonnage between 1789 and 1800. During the period mentioned it rose from 123,893 to 669,921. The total tonnage, which in 1789 was 201,562, was 972,492 in 1800. The imports, which in 1790 were $23,000,000, were $91,252,768 in 1800, and $111,363,511 in 1801. The exports rose during the same period from $20,205,156 to $70,970,780 in 1800, and $94,115,925 in 1801. This remarkable advance was due partly to the industry and energy of our citizens and partly to favorable circumstances. The troubled state of affairs in Europe exerted a very favorable influence upon American commerce. The mercantile marine of the United States was built up by the great wars which followed the French Revolution, at the close of the last and beginning of the present century. Those wars created a demand for our exports; and as the "great powers" of Europe were preying upon each other's shipping, there was a large carrying trade ready for the vessels of a neutral power. The United States, by establishing their independence, had become a neutral nation, sufficiently remote to have no direct interest in the quarrels of the combatants, sufficiently near to furnish the requisite transportation. American shipping soon became of necessity the preferable medium for carrying on the commerce of the world, for the Americans alone could carry with safety the valuable commodities of the nations which were at war. Having every advantage for ship-building and navigation, this country began a career which soon became extraordinarily extended and unusually successful. Not only did American ships carry

the colonial productions to the several parent states; our merchants, emboldened by the opportunities thrown in their way, became purchasers of those productions in the French, Spanish and Dutch colonies. A new era was established in the commercial history of America. Many embarked in mercantile enterprises who had no special training, who were even unacquainted with the general principles of trade, yet so favorable were the circumstances which we have mentioned that the most adventurous became the most wealthy. Few confined themselves to a single branch of the business, the same person frequently being concerned in voyages to the four quarters of the globe. Our tonnage, as will be seen by the table, increased with a rapidity adequate to the demand; in proportion to our population we were the most commercial nation in the world; in the value of our commerce we stood next to Great Britain. The declaration of the Peace of Amiens, in 1802, had an unfavorable effect, causing the registered tonnage to sink to 560,381, but the recommencement of the war speedily brought it up to and beyond its former proportions (672,530 tons in 1804, 749,341 in 1805, 808,285 in 1806 and 848,307 in 1807). The carrying trade, or freight, of the commercial world, nearly all of which now again came to America until the war of 1812, was valued at *ten per cent.* of the capital; and it is stated by Warden that "the United States also gained five per cent. by exchange, so that the annual profits of commerce and foreign navigation have been estimated at fifteen per cent. upon the capital." The same author gives a glowing description of the commercial activity of this period. "Youths of sixteen are sent abroad as factors or supercargoes to every commercial country, entrusted with the management of great concerns. Stimulated by the prospect of independence, they study the manufactures and markets of foreign states, the quality, value and profits of every commercial article, while the youth of other countries of the same age and rank have not formed a thought of a provision for future life. Maritime and commercial business is executed [in the United States] with more celerity and less expense than in any other country. Vessels in the ports of this country are laden and unladen in the course of a few days, whilst in those of other countries as many months are required for the same purposes, owing to tedious regulations and less enterprise." The success of the United States excited the jealousy of foreign countries, and between 1804 and 1807, inclusive, no less than 1000 American vessels were captured by nations professedly at peace with this country, for alleged breaches of blockade or of commercial decrees. The "orders in council" and the Berlin and Milan decrees [see HISTORICAL SKETCH, pages 113 and 114], together with the embargo declared by our government (both for the purpose of retaliating and to preserve our mercantile navy, according to some authorities), were equally destructive in their effects upon American commerce. The export trade of the United States, which had increased

to $101,536,963 in 1806 and $108,343,151 in 1807, was thus reduced by this succession of blows to $22,430,960 in 1808, but little more than the amount ($19,012,041) in 1791, the second year after the adoption of the Constitution. Upon the raising of the embargo in 1809 commerce at once revived, though, as is seen by the table, it did not reach the previous figures. The war of 1812 had, of course, a depressing effect upon our commerce. In 1814 our exports were only $6,937,441 and our imports $12,965,000. There was a slight falling off in the registered tonnage, but it is difficult for us to form any idea as to the source whence Sir Morton Peto obtained materials for the following statement: "In the following year [1812] the Americans themselves put an end to their own navigation and commerce by entering upon war with Great Britain. Our navy swept their vessels from the seas, and two years after the outbreak of this war the Americans had only 59,700 tons of shipping engaged in the foreign trade, instead of the 1,100,000 tons employed seven years previously." The *Reports on Commerce and Navigation* give the following figures for the registered tonnage of 1812, 1813 and 1814 respectively: 760,624 tons, 674,853 tons and 674,633 tons. As a counterpoise to this assertion of Sir Morton, we give a statement written by Wharton and published in Edinburgh in 1819: "The great injury done to the commerce of Great Britain during that war, notwithstanding her powerful navy, bears strong testimony to the activity and enterprise of American seamen. More than *seventeen hundred* of her vessels were captured during the course of the war; and it has been stated that only one out of three American vessels employed in commerce were taken by the English during the same period." It is also to be doubted whether, "if America had not gone to war with Great Britain in 1812, it is probable that she would have retained to this day her ascendency in general commerce." Open war was not much worse than the state of affairs which permitted our vessels to be crippled by the impressment of their best seamen, and a thousand ships to be captured in a time of nominal peace. The truth is that the downfall of Napoleon and the consequent peace between England and France removed the favorable circumstances which had given so large a share of the carrying trade to the United States. Our seamen did not lack daring or enterprise or skill. Nantucket sloops of eighty tons, with ten men, doubled Cape Horn to pursue the whale fishery in the Pacific. After visiting the south-western coast of New Holland, the Malouin or Falkland and other islands, they touched for refreshments at the Cape of Good Hope, at the Sandwich Islands or at the ports of Chili. A lucrative commerce with the Feejee Islands was carried on by small vessels, carrying trifling articles of hardware, which were exchanged for sandal-wood. With the latter commodity they proceeded to Canton, where they sold it at the rate of $400 per ton, it being in great demand for use as incense in the Chinese temples. With-

out any previous knowledge of routes, winds, tides or harbors, the American whalemen and pilot-boat seamen visited every coast, and, to the astonishment of Europe, made shorter voyages than old and experienced navigators. It is scarcely necessary to enter into details as to the progress made in the value of exports and imports. The tables tell their own story. After considerable fluctuation the imports went above one hundred millions during the year 1831, since which time they have not fallen below that amount, the exports going past this point in 1834. The panic of 1837 caused a falling off, but the lost ground was very soon recovered. In 1851 both exports and imports went above two hundred millions; in 1856 both exceeded three hundred millions, the imports having passed this point in one of the previous years (1854, when they were $304,562,381), and in 1860 the exports were $400,122,296. The influence of the civil war is seen in the small figures for the years 1861–1865 inclusive, and the beneficent effect of peace is shown by the sum of $550,684,228, as the exports for 1866, overbalancing by more than one hundred millions of dollars the imports ($445,512,158). There was some fluctuation during the following four years. In the fifth (1871) both exports and imports passed the bounds of five hundred millions. In 1872 (exports, $501,164,971; imports, $640,337,540) and 1873 (exports, $578,938,985; imports, $663,617,147) the balance of trade was against this country, but for 1873–4 the specific figures are as follows: Excess of total exports over total imports (being the balance in favor of the United States), $57,052.97; specie and bullion exported, $66,630,405 (domestic, $59,699,886; foreign, $6,930,719); imports, $28,454,906; excess of specie and bullion exported, $38,175,499; total exports of merchandise, $569,433,421 (domestic, $552,583,802; foreign—*i. e.*, *re*-exports—$16,849,619); imports of merchandise, $567,407,342; real balance against the United States, being the excess of imports of *merchandise* over exports of *domestic merchandise*, which had to be made up by shipments of the precious metals, $14,823,540. For the year ending June 30, 1875, the figures (furnished by the chief of the Bureau of Statistics in advance of the publication of the *Annual Report on Commerce and Navigation*) are as follows: Domestic exports, $643,094,767; foreign (*re*-exports), $22,433,624; exports of merchandise, $573,396,249 (domestic, $559,237,638; foreign (*re*-exports, $14,158,611); imports of merchandise, $533,005,436; exports of specie and bullion, $92,132,142 (domestic, $83,857,129; foreign, $8,275,013); imports of specie, $20,900,717; specie balance in favor of the United States, $71,251,425. Balance in favor of the United States, arising from the excess of exports of *domestic merchandise* over imports of *merchandise*, $26,232,202. If the exports of foreign merchandise (re-exports) be thrown into the scale, the balance in favor of this country is $40,390,813, and the balance to the credit of this country

arising from the excess of *total* exports ($665,528,391) over *total* imports ($553,906,153) was $111,622,238. We have taken it for granted, while making our comments upon these figures, that the real balance of trade in favor of this country arises from the excess of the exports of *domestic* merchandise over the imports of foreign merchandise; that the drain of the precious metals required to make up the deficiency when the exports of domestic merchandise fall below the imports of foreign merchandise is highly undesirable, and an indication of an importation above our real wants, or at least that when the trade of this country is in such a condition that large shipments of specie and bullion are requisite to keep the balance even, the outlook is not so hopeful as it is when the intrinsically useful products of the industry and enterprise of our people suffice, and more than suffice, to satisfy the debts incurred in foreign lands.

Articles of Export and Import.—"The great variety of the native productions exported gives assurance of the impossibility of failure in the resources of the nation. If the Americans were limited to a few products, it might be argued that such products might not be in demand, or that their supply might fail, or that other countries might compete successfully with America by producing them in greater abundance and at lower rates; but here we have the products *of the sea*, consisting of oil, whalebone, spermaceti, and dried, smoked and pickled fish; *of the forest*, consisting of every description of timber, shingles, staves, lumber, naval stores and furs; *of agriculture*, consisting not only of every description of corn and vegetable food, but of the products of animals, beef, pork, tallow, hides, bacon, cheese, butter, wool, lard, hams, and of horned cattle, horses and other animals; *of the great staples of the Southern States*—cotton, tobacco, rice and sugar; *of manufactures*, in very great variety; *of raw produce*, in increasing quantities; and *of specie and bullion*, to an extent which has never been exceeded." The division adopted by Sir Morton Peto in the above statement is partly copied from that which was early adopted at the Treasury and appeared in the annual account of exports after the year 1802. The exports were classed, according to source, under four heads—viz., 1. The produce of the sea; 2. The produce of the forest; 3. The produce of agriculture; 4. Manufactures and those articles the origin of which was uncertain. In 1830 cotton ($29,674,833), tobacco ($5,586,365) and rice ($1,986,824), amounting collectively to $37,248,072, furnished more than one-half of the total value of the exports of that year. In the year ending June 30, 1873, unmanufactured cotton ($227,243,279), wheat and wheat flour ($70,833,918), Indian corn ($23,794,694) and illuminating oils ($37,195,735), amounting collectively to $359,067,626, furnished one-half of the exports (total value of domestic exports in currency, $649,132,563). The currency value of domestic exports shipped in cars and other land vehicles during the year just mentioned was $7,785,075;

shipped in American vessels, $163,110,634; shipped in foreign vessels, $478,236,854. The principal articles imported were sugar and molasses ($92,639,023), 293,284,201 pounds of coffee, worth $44,107,397, and 64,815,016 pounds of tea, worth $24,466,094, amounting collectively to $161,212,514, or nearly one-fourth of the total imports. Of the total value of the imports, the following statement is given as to the conveyances in which they came: "Brought in cars and other land vehicles, $17,070,548; brought in American vessels, $174,739,834; brought in foreign vessels, $471,806,765. The principal articles exported during the year ending June 30, 1874, were cotton (value, including that of sea-island cotton, $211,223,580), wheat and wheat flour ($130,679,153), illuminating oils ($37,560,955), bacon and hams ($33,283,908) and leaf tobacco ($30,399,-181), amounting collectively to $405,585,822, or nearly two-thirds of the total currency value ($693,039,054) of the domestic exports. Of this total value there was exported in cars and other land vehicles, $5,645,265; in American vessels, $165,998,880, and in foreign vessels, $521,394,909. The principal imports during the same period were sugar and molasses ($92,-949,203), 285,171,512 pounds of coffee ($55,048,967), 72,353,799 square yards of dress-goods ($21,162,635) and 55,811,605 pounds of tea ($21,-112,234), amounting collectively to $190,273,039, or more than one-third of the total imports. Of this total value ($595,861,248) the following statement as to conveyance is given: Brought in cars and other land vehicles, $14,513,335; brought in American vessels, $176,027,778; brought in foreign vessels, $405,320,135.

Shipping.—The partial suspension of emigration to America brought about by the civil wars in England threw the first colonists in New England upon their own resources, and gave a decided impulse to the business of ship-building. Governor Winthrop says in his journal (Dec. 2, 1640): "The general fear of want of foreign commodities, now our money was gone and things were [not] like to go well in England, set us on work to provide shipping of our own, for which end Mr. Peter, being a man of very public spirit and singular activity for all occasions, procured some to join for building a ship at Salem of 300 tons; and the inhabitants of Boston, stirred up by his example, set upon the building another at Boston of 150 tons." These were not, however, the first American vessels. A bark belonging to Governor Winthrop, and named by him *The Blessing of the Bay*, was launched at Mystic (now Medford), Mass., on the 4th of July, 1631. Its burthen was 30 tons. Another vessel, of 60 tons, was built at the same place in 1633, and the people of Salem built at Marblehead a vessel of 120 tons in 1636. In 1676, just a century before the Declaration of Independence, there were 730 vessels owned in Boston and its vicinity and built in that neighborhood—viz., 30 between 100 and 250 tons; 200 between 50 and 100 tons; 200 between 30 and 50 tons; and

300 between 6 and 30 tons. Ship-building was carried on in the other colonies, but not to so great an extent as in New England. The tonnage of the vessels built in all of the colonies during 1769 was 20,001; in 1770 it was 20,610; and in 1771, 24,068, of which amount a little more than one half was built in Massachusetts and New Hampshire. It is difficult to obtain any reliable figures for the number of vessels built after the adoption of the Constitution before the year 1815. A table "showing the number and class of the vessels built, and the tonnage thereof, in the several States and Territories of the United States, from 1815 to 1874, inclusive," will be found elsewhere [see TABLE I., in APPENDIX]. Warden (writing in 1819) says: "Merchant vessels are built and prepared for the sea in the course of four or five months, and they sail faster than those of any other country. The schooners constructed at Baltimore and known by the name of 'pilot-boat schooners' have often sailed with a cargo from an American to an English or French port in seventeen or eighteen days. The American seamen are exceedingly active and enterprising. Sloops of sixty tons and eleven men have sailed from Albany (160 miles up the Hudson River) to the coast of China. The first of this description which arrived there was believed by the natives of the country to be the long-boat of a large merchant vessel, which (the large vessel) they vainly looked for during several days. We have seen it announced in an American newspaper that on the 11th of April, 1814, a ship was launched at Vergennes, on Lake Champlain, of 150 feet keel, and measuring 500 tons, the timber of which was cut down in the forest the 2d of March preceding. The *Peacock*, of 18 guns, was built in New York in 18 days, the *Wasp* [see HISTORICAL SKETCH, page 116] at Portsmouth in 20 days, and the *Superior*, of 64 guns, on Lake Ontario in 30 days." He says elsewhere, speaking of the inland navigation: "As early as the year 1793 a schooner launched on the Monongahela River, between Brownsville and Pittsburg, sailed to New Orleans (a distance of 2000 miles), and afterward proceeded by sea to the port of Philadelphia. Since that period numerous vessels of from one hundred to four hundred tons have been built on the Ohio at Marietta, Frankfort, Elizabethtown, Louisville, Wheeling and Pittsburg, for the purpose of transporting the surplus productions of Kentucky, Tennessee and Louisiana to the Atlantic ports of the United States, to the West Indies and to Europe. From the year 1802 to 1805, at the shipyards of Pittsburg, there were launched four ships, three brigs and three schooners; at Elizabethtown two brigs. In 1808 two ships and a brig were launched on the same day at Marietta. Several of the gunboats of the United States have been built at this place. Between the Southern and the Northern States there is a constant interchange of commodities, which in time of war is carried on by land and during peace by sea. The latter furnish rum, molasses, cordials, dried fish, European goods

and articles of small value quaintly styled '*notions*,' and take in return the corn, grain, cotton and tobacco of the South. In this trade the New England people are the carriers, and furnish everything for which there is demand. Even coffins of all dimensions have been offered for sale by these ingenious trading speculators. In 1810, 23 vessels (ships, brigs and sloops) were employed in the trade of Lake Erie, and 12 in that of Ontario." After referring to "the proposed canal between Lake Erie and the Hudson River," in the success of which he evidently had more faith than Jefferson [see HISTORICAL SKETCH, page 121], he notes the following interesting circumstance: "In 1813 the war gave rise to an internal trade greater in point of distance than any hitherto known, except that between Moscow and China. Light goods were transported from the town of Boston, in Massachusetts, to the province of Mexico by the following channels of conveyance: From Boston to Providence by wagons; from the latter place by water to Amboy; thence by land and water to Philadelphia; thence by wagons to Pittsburg, and down the Ohio and Mississippi to New Orleans; thence by land and boats to the country of Mexico. Before the war there were but two wagons that plied between Boston and the town of Providence, and soon after its commencement the number increased to 200. It has been stated that certain light goods have been delivered in Mexico with the addition of fifteen per cent. on their cost at Boston, when the ordinary insurance by sea would amount to twenty-five or thirty per cent. Of late there has existed a commerce in mules, which have been brought from the country of Texas to the Carolinas (by the way of Natchez and the country of Tennessee), where they are sold for 40, and even 60, dollars per head." The reader will elsewhere find statements of the amount of tonnage of the whole mercantile marine of the United States, also a separate statement of the steam tonnage for various successive years [see TABLES II., III., in APPENDIX]. The increase in the registered tonnage shows the progress made in the number and size of vessels engaged in the *foreign* trade. The "enrolled and licensed" tonnage gives a fair idea of the progress made in inland and coast navigation. In the *Report on Commerce and Navigation for* 1874 is given the following summary for that year by States and coasts:

States.	Vessels.	Tons.	States.	Vessels.	Tons.
Maine	3221	565,842.59	District of Columbia	472	28,196.50
New Hampshire	62	11,370.18	Virginia	892	22,623.54
Massachusetts	2563	458,373.10	North Carolina	279	7,408.91
Rhode Island	274	36,265.55	South Carolina	195	8,142.43
Connecticut	836	96,317.44	Georgia	63	9,291.84
New Jersey	1124	94,689.34	Florida	237	9,588.76
New York	5051	1,026,023.56	Alabama	99	7,909.41
Pennsylvania	2935	363,542.18	Mississippi	94	3,368.56
Delaware	197	13,533.88	Louisiana	572	50,961.71
Maryland	1993	142,267.65	Texas	306	11,998,27

Total on the Atlantic and Gulf coasts, 21,465 vessels, aggregating 2,967,-715.30 tons; on the Western rivers, 1564 vessels, aggregating 373,464.59 tons; on the Northern lakes, 4833 vessels, aggregating 758,838.84 tons; on the Pacific coast, 1125 vessels, aggregating 164,418.99 tons. Total, thus far, 28,987 vessels, with a combined tonnage of 4,264,437.62. Unrigged vessels not reported, 2936, aggregating 331,446 tons. Grand total for 1874, 31,923 vessels, aggregating 4,595,883.72 tons. This total of tonnage is not the same as that given in the table (4,800,652); but as both are found in the *Report on Commerce and Navigation for* 1874, one being on page 1053 and the other on page xxv. of the introduction, the task of reconciling them belongs not to us, but to the Treasury Department, whence the *Report* was issued. Previous to the passage of the act of April 18, 1874, canal and other boats employed on inland waters or canals were required to be enrolled and licensed under the provisions of the act of February 18, 1793, if they entered navigable waters, and, from the fact of such enrolment and license, they were included in the returns of tonnage belonging to the several districts of the United States June 30, 1873. The act of April 18, 1874, exempts this class of boats, with but few exceptions, from enrolment and license, hence they do not appear in the returns of tonnage belonging to the several customs districts June 30, 1874. On the 30th of June, 1873, 10,739 unrigged vessels were reported, having a tonnage of 1,223,303.81, while the number reported June 30, 1874, was 7803, with a tonnage of 890,858.07. The difference between these figures (2936 vessels, with a tonnage of 331,-445.74) is assumed to be the amount dropped on account of the act of April 18, 1874. The number of sailing vessels was 17,226, with an aggregate tonnage of 2,257,154.23; steam vessels, 3958, with an aggregate tonnage of 1,116,425.42. The tonnage last given is also different from that in the table of steam tonnage, but as both figures come from the same source as the preceding ones, the responsibility rests in the same quarter. We shall conclude this division of our subject by quoting the following appreciative remarks of Sir Morton Peto: "No people build their ships on better principles. Their skill in cutting sails and in applying them to every description of craft has always struck me as peculiarly remarkable. The superior capacity and very fine character of American merchant ships will be appreciated by all who remember the beautiful class of sailing vessels which were formerly on the New York and Liverpool stations as what were called 'liners.' Those vessels were the very best vessels of their class, and they no doubt acquired wide celebrity for American shipping. They are now superseded by steam-packets, but the fame of these vessels has enabled the Americans not only to possess themselves of the largest proportion of the emigrant trade, but also to lay on lines of packets between Havre, Marseilles, Hamburg, Rio de Janeiro, Bahia, Panama, the West Indies and various points both of the Atlantic and Pacific Oceans."

Steam Navigation.—The first appearance of steam tonnage in the government reports was in 1823 [see TABLE III.], when the amount was 24,879 tons of enrolled and licensed vessels. Steam-vessels were not registered in this country for the foreign trade until 1830, when the amount was 1419 tons. In 1832 the registered steam tonnage was only 181 tons. It rose to 5149 tons in 1839, but was only 746 in 1842, and did not exceed 7000 before 1848, when it amounted to 16,068 tons. At one time, when 110 steamers were employed in the trade between Great Britain and America, only two were American, while out of 1200 sailing vessels employed in the same trade 960 were American. Sir Morton Peto makes an amusing mistake when treating of the registered steam tonnage of the United States. He says: "In 1865, on the old admeasurement, it amounted to 69,500 tons, and on the new admeasurement to 28,400 tons." He says elsewhere: "The tonnage, which 'under the *old* admeasurement' was computed at one figure, is estimated 'under the *new* admeasurement' at another and a smaller total." The correction of this error will be found elsewhere [see the last foot-note to TABLE II., in APPENDIX]. A portion of the returns—at first the larger portion—came in under the *old* admeasurement, but every year the new admeasurement gained ground, until, in 1869, it covered the whole field. It was certainly not very complimentary to the ability of either the government officials or the ship-owners to suppose that for years a system of admeasurement should be used which made "28,400 tons" read "69,500 tons," thus more than doubling the true amount. The progress made in steamship building at Chester, Pa., is noted elsewhere [see PENNSYLVANIA, in TOPOGRAPHY]. The enrolled and licensed steam tonnage has advanced usually with great steadiness, as is seen by the table. Many of the steamers on the Western rivers are very handsomely fitted up, so that they have been styled, without much exaggeration, "floating palaces." The increase in the enrolled and licensed tonnage (which amounted, including steamers, sailing vessels and unrigged craft, to 3,371,729 tons on the 30th of June, 1874) can, it must be acknowledged, be contemplated with much more satisfaction than is felt when examining the figures of registered tonnage. The latter has by no means kept pace with the increase in the foreign commerce of this country, as can be seen by the large proportion of both exports and imports carried by foreign vessels.

THE PRESS.

THE first newspaper printed in the United States appeared on the 25th of September, 1690, and was called *Publick Occurrences.* Only one number appeared, as it ventured to touch upon local and military matters, whereby umbrage was given to the government, and the incipient enterprise was forthwith nipped in the bud. With the exception of one issue of a reprint of the *London Gazette,* no further attempt was made to publish a newspaper until 1704, when the *Boston News Letter* was founded, which was published weekly, sometimes upon a full sheet, foolscap size, but oftener on a half sheet with two columns upon each side. After a struggle of fourteen years the publisher was thirteen months behindhand in giving foreign news, and acknowledged that it was "impossible with half a sheet a week to carry on all the Publick News of Europe." By issuing an extra sheet every other week, eight months of these arrears were paid between January and August, 1719, so that the publisher was able to boast with honest pride that his news from Europe was only five months old. On the 21st of December, 1719, appeared the first number of the *Boston Gazette,* and on the following day the *American Weekly Mercury* was established in Philadelphia, being the third newspaper in America. The fourth was the *New England Courant,* established in Boston on the 7th of August, 1721, by John Franklin, the brother of Benjamin Franklin. During the next half century the number of newspapers in the colonies increased, and at the beginning of the Revolutionary War in 1775 there were no less than 37 American newspapers. Feeble as specimens of these may appear at the present day when compared with modern journals, they did good service in their day and generation by educating the people and instilling into their minds those principles of liberty which bore fruit during the struggle between the colonies and the mother-country. Almost all of them took up the cause of the patriots. Before the Revolution the *Boston Gazette* had such contributors as John Adams, James Otis, Joseph Warren and other leading patriots. During the war the *Massachusetts Spy,* published at Worcester by Isaiah Thomas, rendered efficient service to the American cause; and the satires of Philip Freneau, which appeared in the *United States Magazine* and in the *Freeman's Journal,* served as an antidote for the Toryism of Rivington's *Royal Gazette,* a specimen of which has been elsewhere given (see COINS AND CURRENCY).

A service still greater, if possible, had been rendered to American liberty, more than forty years before the Revolution, by John Peter Zenger, assisted by the proverbial acuteness of "a Philadelphia lawyer." Zenger established the *New York Gazette* in 1733. During the following year he severely criticised the corrupt administration of Colonel William Cosby, who was at that time the governor of the colony. The unfortunate printer was arrested on the charge of libel, and was imprisoned. The lawyers who first took his case in hand were excluded from the bar by Delancy, one of Cosby's creatures, who had been illegally appointed judge, and the fear of similar treatment deterred other members of the bar from accepting the dangerous task of defending the intrepid editor. At this juncture Andrew Hamilton, an aged Quaker lawyer, who was at this time the Speaker of the Pennsylvania Assembly, was called over from Philadelphia to undertake the case. Every effort was made by the judge and the attorney-general to secure Zenger's conviction. When Hamilton offered to prove the truth of the alleged libel, Delancy, following English precedents and supported by the authority of Lord Coke, refused to admit the evidence. Hamilton was not dismayed at this rebuff, but boldly appealed to the personal knowledge of the jury. No evidence was necessary; the facts were notorious; the jury knew that the statements complained of were true, and they ought to be obliged to Zenger for having published them. "The question before you," he said, "is not the cause of a poor printer, nor of New York alone. It is the best cause—it is the cause of liberty. Every man who prefers freedom to a life of slavery will bless and honor you as men who by an impartial verdict lay a noble foundation for securing to ourselves, our posterity and our neighbors that to which Nature and the honor of our country have given us a right—the liberty of opposing arbitrary power by speaking and writing truth." This eloquent and convincing appeal was successful. The jury brought in a verdict of "Not Guilty," and the triumphant advocate was conducted from the court to a public entertainment; a salute of cannon was fired when he departed for his own home; and the freedom of the city was voted to him "for the remarkable service done to the inhabitants of this city and colony by his defence of the rights of mankind and the liberty of the press." Zenger was not possessed of great journalistic ability. He was not even a careful printer, judging by the fact that in so important a matter as the date of his first paper there is a mistake of a month (!), the true date being November 5, not October 5, 1733. He was, however, a man of dauntless spirit, who rendered by his manly stand a great service both to American liberty and to the greatest safeguard of that liberty—the freedom of the press. The view of the law of libel taken by Hamilton was far in advance of his times. Zenger's acquittal took place thirty-five years before Lord Mansfield boiled down Coke's dictum for use into the famous maxim, "The

greater the truth, the greater the libel." It was fifty-seven years before the English statute law constructively permitted the jury to bring in a verdict of "Not Guilty," even if the defendant had published the words alleged. It was more than a century before that same statute law provided in substance that the truth should be a substantial defence if it had been published for the public benefit. So slow was the progress of liberty in the mother-country! Gouverneur Morris, instead of dating American liberty from the Stamp Act, traced it to the trial of John Peter Zenger, because that event revealed the philosophy of freedom, both of thought and speech, as an inborn human right. "It was," said Morris to Dr. Francis, "the germ of American freedom; the morning-star of that liberty which subsequently revolutionized America."

The first daily newspaper in America was the *American Daily Advertiser*, established in Philadelphia in 1784. The second was the *New York Daily Advertiser*, established in 1785. The name of the former was changed to *Poulson's Advertiser* in 1802, and in 1839 this journal was merged in the *North American*. The *New York Daily Advertiser* was united with the *New York Express* in 1836. The number of newspapers rapidly increased during the last quarter of the eighteenth century, and in 1800 there were 27 dailies and 359 newspapers and periodicals of all kinds, having a total annual issue of 22,321,700 copies. In 1828 there were 852 newspapers and periodicals; copies annually printed, 68,117,796. In 1835 there were 1258 newspapers and periodicals; copies annually printed, 90,361,000. In 1840 there were 1631 newspapers and periodicals; copies annually printed, 195,838,673. In 1850 there were 2526 newspapers and periodicals; copies annually printed, 426,409,978. In 1860 there were 4051 newspapers and periodicals; copies annually printed, 927,951,548. In 1870 there were 5871 newspapers and periodicals; copies annually printed, 1,508,548,250. The *average* number of copies annually printed was—in 1775, 35,405; in 1810, 62,177; in 1828, 79,950; in 1835, 71,431; in 1840, 120,060; in 1850, 168,807; in 1860, 204,384; and in 1870, 256,949. As all classes have been mingled in giving these totals and averages, and as the amounts for the later periods have been swelled to somewhat disproportionate limits by the large number of dailies included (a daily issuing annually six times as many copies as a weekly of the same circulation), we shall now give a few figures with reference to the *circulation*, that word being taken in its popular sense. In 1850 the circulation of newspapers and periodicals published in the United States was 5,142,177 copies; in 1860 it was 13,663,409 copies; in 1870 it was 20,842,475 copies. The increase in the number of newspapers and periodicals of 1860 over 1850 is 60 per cent.; that of 1870 over 1860 is 45 per cent.; and that of 1870 over 1850 is 133 per cent. The increase in total circulation of 1860 over 1850 is 165 per cent.; that of 1870 over 1860 is

52 per cent.; and that of 1870 over 1850 is more than three hundred per cent.

The newspapers and periodicals published in the United States in 1870, classified by their periods of issue were—daily, 574; tri-weekly, 107; semi-weekly, 115; weekly, 4295; semi-monthly, 96; monthly, 622; bi-monthly, 13; quarterly, 49. The average circulation was—daily, 4532 copies; tri-weekly, 1449; semi-weekly, 2149; weekly, 2466; semi-monthly, 14,060; monthly, 9084; bi-monthly, 2434; quarterly, 4302. When classified with reference to their nature there were—advertising newspapers and periodicals, 79; agricultural and horticultural, 93; commercial and financial, 142; illustrated, literary and miscellaneous, 503; political, 4333; religious, 407; sporting, 6; technical and professional, 207; newspapers and periodicals belonging to, or dealing especially with the affairs of, benevolent or secret societies, 81; those devoted to nationality, 20. By another division there were—religious newspapers and periodicals, 407, with an aggregate circulation of 4,764,358 copies, and an average circulation of 11,698; and 5464 secular newspapers and periodicals, with an aggregate circulation of 16,078,117 copies, and an average circulation of 2942. We shall conclude this array of figures with a few statistics of the daily and weekly press. In 1850 there were 1902 weekly newspapers, with an average circulation of 1548 copies; in 1860 there were 3173 weekly newspapers, with an average circulation of 2389 copies; and in 1870 there were 4295, with an average circulation of 2466 copies. In 1850 there were 254 daily newspapers, with an average circulation of 2986 copies; in 1860 there were 387, with an average circulation of 3820 copies; and in 1870 there were 574, with an average circulation of 4532 copies.

We have given these figures, showing the *numerical* increase both in the number of newspapers published in the United States and in their circulation, to enable our readers to form some idea of the rapid advance made during the past century and a half by a power which has sprung into existence during that period. We feel how inadequate mere numbers are to serve as a measure for the magnificent development of the art and science of journalism during the period which has intervened since the first feeble efforts of John Campbell, publisher of the *Boston News Letter*. With equal propriety could a merely numerical comparison be made between one Queen Anne's musket, or thirty-seven guns such as were used during the Revolutionary War, and five thousand rifles of the latest pattern. The products of thought can be neither weighed nor measured. Their length, breadth, height and depth cannot be taken and tried "upon an exact scale of Bossu's." Still, an approximation may be made, albeit the nearer it approaches the truth the more exaggerated it will seem to those who have not given the matter serious consideration. In the introduction to

Hudson's excellent *History of Journalism* can be found several estimates of the power of the press, made at different periods by very different people, yet showing a unanimity which gives evidence that there is a basis of truth upon which these various opinions rest. Napoleon I. says: "Four hostile newspapers are more to be dreaded than a hundred thousand bayonets." Carlyle says: "Great is journalism! Is not every able editor a ruler of the world, being a persuader of it?" Thiers says: "The real judge of the judge is public opinion;" and the special application of this remark to our subject is given by Jules Favre, who says: "The press has no power but that which results from public opinion." David Hume says: "Its liberties and the liberties of the people must stand or fall together." The bishop of Western New York says: "After all, the press is king. It is the press that creates public opinion. It is the grand fact of the hour that popular sentiment has been educated by the press up to the point of spurning party-trammels and voting on principle."

All of these expressions of opinion apply with peculiar force to the press of the United States. No grander proof can be offered of the elevating and enlightening influence of freedom than the fact that no nation on the face of the globe possesses a press which can compare with that of this country, whether we consider the number of newspapers or their influence. With the same rate of increase in the next ten years as in the past, there will be more newspapers and periodicals published in the United States than in all the rest of the world combined. The number is now between 7000 and 8000. Who can estimate the influence upon our national life and growth of this ever-flowing and ever-increasing stream of information, sent forth in such a form and at such a price as places some portion of it at least within the reach of the poorest citizen in the land who is able to read? The invention of the electric telegraph, the perfecting of phonography, the recent wonderful improvements of the printing-press, have increased facilities for obtaining and imparting news; but the real secret of the marvellous influence of the press is to be found in the ability, the sagacity and the force (to use a word frequently employed to express this particular journalistic quality) of the modern editor. The editor is a creation of the present century. Occasionally among his predecessors was seen a spark of the genuine editorial fire, but the time had not yet come for the blazing forth of that galaxy of stars which now so brilliantly lights up the journalistic firmament. When the electric telegraph began to put in communication distant points, and made of our nation, in fact as well as in thought, one closely-connected household, each portion daily anxiously looking for information concerning the rest; when phonography made it possible to transcribe the spoken word, no matter how rapidly it is uttered; when the more general diffusion of education had caused a thirst for knowledge, and rapid progress in the arts and sciences had created a demand

for profound thinkers yet ready teachers,—then it was that the editor first laid claim to his present high position. The Hebrew prophets were not only religious teachers, but also state moralists and guardians of the republic, uniting the functions of the Roman censors and the tribunes of the people. What the Hebrew prophet was in the olden time in his civil capacity, the editor is, or ought to be, at the present day; for to him the people look for counsel in times of danger and perplexity—for cheering words which shall light up the gloom in the day of adversity, and shall give greater zest to seasons of prosperity.

The teachings of the philosophers of antiquity were the almost peculiar property of the few favored disciples who frequented the garden or the porch where the instructor could be found, and the admonitions of statesmen were generally given in harangues; but the editor speaks at times to an assembly greater than any that ever filled the Roman Colosseum, composed not merely of men of leisure, but of all classes, rich and poor, learned and unlearned. A moral priesthood is therefore upon him—an obligation to teach what is positively right, as well as to rebuke what is wrong; for his influence for good or for evil is quickly and powerfully felt, and to him, if to any one, it may be said: "By thy words thou shalt be justified, and by thy words thou shalt be condemned." Great, therefore, as is his power, his responsibility is equally great. There are wrongs to right, and rights to be maintained. There is ignorance to be enlightened, error to be corrected, wickedness to be reproved. To note the signs of the Times; to Chronicle the Progress of events; to Express sentiments of truth and justice; with Argus eye to be like a Sentinel or Watchman at his Post, the first to Herald the News to all the World; to give in his Bulletin the latest intelligence by Telegraph from all parts of the Globe, taking care that not a single incorrect Item enters into the Graphic descriptions of his Reporter; to Press ever on to higher ground, never behind the Age, but brilliant as "the Sun that shines for all;" to keep the balance in Ledger, Journal and Day-Book on the right side; to Appeal to the best impulses of the good, but to fall upon evil-doers with the force of an Avalanche; Independent in thought, to strive to bring about a true Golden Age; to keep an unsullied Record as Patriot and Statesman, caring for the welfare of the whole Nation; to be a Tribune of the People, a Defender of the sanctities of Hearth and Home; a promoter of Christian Union; an Inquirer after truth; a keen Observer and a correct Recorder,—these are the editor's duties; and if he fulfil them properly, be he Republican or Democrat, Conservative or Radical, Methodist, Presbyterian, Episcopalian or Baptist, he will be a Standard-bearer in his Day and generation, a brilliant Star in the Galaxy of authors; and however meagre may be the supply of so-called "sensations," he will have no difficulty in supplying all reasonable demands of "the devil."

AMERICAN LITERATURE.

IT has been said that "half a century ago it was usual to sneer in England at the literary pretensions of America." The sneer had not yet gone out of fashion at the time (1852) when Mr. Tuckerman wrote these words; for more than ten years later than the date given, in a collection of essays written by several British aspirants for political honors, the literary pretensions of American statesmen were thoroughly sneered at. One of these writers (Leslie Stephens, M. A.) says: "Jefferson, Hamilton, Madison and Adams are surrounded by a halo of the most cherished national glory, and their character has been estimated accordingly. To any one who will study their works it will appear that *the two first* [meaning *the first two*] were the only men who can claim the praise of any *original* intellectual force. [Can *intellectual force* be acquired?] Jefferson was little more than a clever retailer of epigrams of the French revolutionary school [the Declaration of Independence is an example; when the English hate anything, their minds are relieved if they call it *French*], whose political career consisted in feebly drifting with his party. Hamilton was an energetic man of business, with a curious incapacity for seeing beyond the British Constitution. To accept them as in any sense great statesmen seems to me a mere concession to national vanity. I think any one who will study the career of General Jackson, or of any of the great trio, Clay, Calhoun and Webster, will come to the same conclusion as regards them. . . . It is useless, however, to complain of the inferiority of American statesmen, unless it appears that better material is passed over. Now, with all its excellences, American society has a characteristic defect: *it has not hitherto produced poets, or philosophers, or artists any more than great statesmen up to the European level.*" The italics and the remarks in brackets in the above quotation are our own. The writer is sometimes sufficiently diffident to say "I think;" but of the assertion contained in the last sentence he is very positive, and the patronizing manner in which he makes that statement is highly edifying. He gives, of course, simply his individual opinion; but it requires no argument to prove that in essays written by office-seekers opinions known to be unpopular are seldom suffered to appear. An examination of British reviews of American works will furnish the reader with many similar assertions. Whatever is unde-

niably good the British reviewer frequently attributes to close study of English authors, or even comes out with a direct charge of plagiarism, or of an imitation so close as to virtually constitute that crime. Imitation enough there has certainly been, and how could it be otherwise? The first colonists could not forget the mother-country, though to many of them she had been a stepmother. Their language was English, their education had been obtained in England, their literature was English. Their absence from their native land made them prize more highly than ever the rich heritage of literary wealth to which they possessed a claim based upon a community of language, of political sentiment and of historical association. They had, moreover, little time to spend in original literary production; the stern realities of life were upon them. To erect permanent dwellings; to bring under cultivation sufficient land to furnish necessary food; to repel the attacks of a wary and savage foe,—such were the tasks which demanded the time and attention, the physical and mental activity, of the majority of those who were pioneers in the settlement of the thirteen original colonies. It was also natural that this ascendency of the mother-country should continue for several generations; and even at the present day it would be as reasonable to expect from British authors works in which the influence of standard English writers cannot be perceived as to demand such works from their "American cousins."

The first book written (some say that it was only finished) in America was a translation of Ovid's *Metamorphoses*, executed by George Sandys, the treasurer of the London Company [see HISTORICAL SKETCH, page 93]. Bancroft speaks of Sandys as "an idle man, who had been a great traveller, and who did not remain in America—a poet whose verse was tolerated by Dryden and praised by Izaak Walton," etc. When the reader remembers that Sandys was one of the most zealous and influential promoters of emigration to America, having sent to Virginia 1200 emigrants during the year 1620 (including 90 young women, who became the wives of planters); that while travelling "he studied the genius, the tempers, the religions and the governing principles of the people he visited," and that after visiting the "Turkish Empire, Egypt, the Holy Land," etc., he composed "the best account of those parts written by any Englishman, and not inferior to the best of foreigners;" that he wrote some of the finest paraphrases of the Psalms, the book of Job and other scriptural poems that ever appeared in any language; and, finally, that the time in which to make the translation from Ovid above mentioned was (says Sandys) "snacht from the howers (*sic*) of night and repose, for the day was not mine";—when the reader remembers these facts, he will agree with us in the opinion that Sandys could not, with justice, be termed "an idle man." Dryden showed his *toleration* by calling Sandys "the ingenious and learned Sandys, the best versifier of the former age;" and his verse was praised by

Pope, by Bliss, by Wood and by Godolphin, as well as by Izaak Walton. Though he "did not remain in America," as the friend of the Pilgrim Fathers, as the promoter of emigration to Virginia and as the author of the first book composed on American soil—a work which he himself said was "sprung from the stock of the ancient Romans, but bred in the New World"—his memory deserves to be cherished by every American citizen, and we might add that his name should be mentioned with respect when it appears on the page of any American writer. The book was published in London in 1621.

As during the strife and carnage and turmoil of the Middle Ages the clergy alone had the requisite learning and leisure to retain and to transmit to posterity the "book-knowledge" of previous centuries, so during the struggles of the first settlers to obtain a footing in the New World the clergy were almost the only class who possessed sufficient both of education and of leisure to enable them to perform literary work. The first book printed in America was the *Bay Psalm Book*, a new translation of the Psalms, made by the chief divines of New England, including Messrs. Welde and Eliot (the famous preacher to the Indians), of Roxbury, and Mr. Richard Mather (father of Cotton Mather), of Dorchester. The Psalms thus turned into metre were printed at Cambridge, Mass., in the year 1640. The preface states as a motive of the collection, "Because every good minister hath not a gift of spiritual poetry to compose extemporary psalmes (*sic*) as he hath of prayer." The book was adopted and almost exclusively used by the New England churches, and by the year 1750 it had passed through at least twenty-seven editions. The translation of the Bible into the Indian language (a Mohegan dialect), commenced by John Eliot in 1658 and finished in 1663, deserves mention here, as it was so peculiarly an American work, and was the only edition of the Scriptures published in this country during the first century after its settlement. The first volume of poems published in America was written by Anne Bradstreet, and appeared in 1678. A portion of these effusions had been published in London in 1650, with a title beginning thus: *The Tenth Muse lately sprung up in America.* While some of Mrs. Bradstreet's verses possess real merit, others are very matter-of-fact, as, for instance, when we are told, in her account of winter—

> "Beef, brawn and pork are now in great'st request,
> And solid'st meats our stomachs can digest."

It was a natural result of the condition of the colonies, containing as they did people of every shade of religious belief, that a large portion of the writings of the clergy should be controversial. One of the earliest of these polemical writers was Roger Williams, the founder of "the first civil government on earth that gave equal liberty of conscience." That his

toleration was not the result of indifference was amply proved by the zeal which he showed in attacking with his pen those whose religious opinions differed from his own. All honor, then, to the man who was "the first person in modern Christendom to assert in its plenitude the doctrine of the liberty of conscience, the equality of opinions before the law!" No fitter place could have been found for the promulgation of this doctrine than this favored land in which "liberty of conscience" is assured by law to every citizen. The memory of Cotton Mather is not so fortunate. His main work, *Magnalia Christi Americana*, or *Ecclesiastical History of New England* (by reading which entirely through Mr. William Tudor immortalized himself), is seldom consulted except by the historical student or the antiquarian; and in most minds his name is more closely associated with *The Wonders of the Invisible World; being an account of the Tryals of Several Witches, lately executed in New England, etc.*, and with the part which he took in those "tryals." A merchant of Boston, Robert Calef by name, replied to this work of Mather's in a book entitled *More Wonders of the Invisible World*, wherein the whole matter of "Salem witchcraft" is exposed with well-merited severity. Mather's book was printed at Boston, and reprinted in London in 1693. Calef's reply was printed in London in 1700, and on its arrival in this country the book was publicly burnt by the Mather party. Among the various controversial works written by American divines during the eighteenth century, there is one which deserves special mention. We allude to Jonathan Edwards' *Inquiry into the Freedom of the Will.* Sir James Mackintosh speaks of the author as "this remarkable man, the metaphysician of America," and in another place as "that remarkable man who in a metaphysical age or country would certainly have been deemed as much the boast of America as his great countryman Franklin." The works of Edwards are among the earliest mental productions of *native* Americans which have obtained a permanent place in English literature. The *Inquiry into the Freedom of the Will* was published in 1754. Ten years before, Franklin had printed a translation of *Cicero de Senectute*, made by James Logan, the founder of the Loganian Library at Philadelphia. This translation has been pronounced by competent authority the best which appeared before that of Melmoth. The preface was written by Franklin, who terms the book "The first Translation of a Classic in this Western world." He evidently had not heard of the work of Sandys. Logan wrote in Latin several scientific monographs, which were published at Leyden, and one of which was republished in London, with an English version by Dr. Fothergill; yet the *London Quarterly Review* (with the fairness alluded to near the beginning of this article) could refer to him as "a man of the name of Logan, as obscure as Godfrey himself." Godfrey was the father of the author of the first dramatic work written in America; and as the inventor of the quad-

rant known as "Hadley's quadrant" (the Royal Society deciding that both Godfrey and Hadley were original inventors), he could not correctly be termed "obscure." The tragedy written by Thomas Godfrey, the son, was entitled *The Prince of Parthia.* It never appeared on the stage, but it was not without merit; and some of his poems show that he possessed the real poetic fire. *A Dithyrambic on Wine* (a beverage of which he had never partaken) was considered as "a refutation of that noted adage that 'A *water-drinker* can never be a good dithyrambic poet.'" The drama was written while Godfrey, who was a native of Philadelphia, was residing in North Carolina.

While this sketch would not be complete without mention of Franklin, his history and his works are so well known to the generality of readers that they do not require an extended notice. The man who (as Turgot wrote) "snatched the lightning from heaven and the sceptre from tyrants" performed, though not an author by profession, more literary labor between the years 1726 and 1790 than many who have worked directly for reputation and the booksellers. While he is remembered as a promoter of science, as a philosopher, as a patriot, as a statesman, and as "the greatest diplomatist of the eighteenth century," it should not be forgotten that the author of "Poor Richard's" wise sayings was a writer of whom even Jeffreys has said, "He never loses sight of common sense in any of his speculations;" and in another place, "His style has all the vigor, and even conciseness, of Swift, without any of his harshness. It is in no degree more flowery, yet both elegant and lively." Franklin was the Nestor of the Revolution, having reached the allotted span of three score years and ten when independence was declared. When the necessity of a separation from the mother-country began to be evident—nay, before that time, when there was still a hope of a reconciliation—there was no lack of literary ability among the friends of freedom. The stand taken by the newspapers is elsewhere mentioned [see article on THE PRESS, page 395]; and we have also noted the opinion of Lord Chatham with reference to the State papers issued by the First Continental Congress, and which were composed by John Jay and William Livingston. That the compliment referred to literary merit as well as to other qualities is evident from Chatham's prefatory remark, "I must declare and avow that in all my reading of history (and it has been my favorite study; I have read Thucydides, and have studied and admired the master-states of the world), but for solidity of reasoning," etc. [See HISTORICAL SKETCH, pp. 99, 100.]

During the stirring events preceding the Revolution, during the war itself, and indeed up to the period of the adoption of the Federal Constitution, there was little leisure to cultivate literature for itself. The stern realities of the hour, the dawning of a general desire for independence, the hand-to-hand struggle for seven years, the anxiety to settle upon a

permanent form of government, gave to the writings of the day an intensely practical tone. Even the humorous poems of this period are generally intended to impress some important truth upon the popular mind, or to hold up to well-merited ridicule the enemies of freedom. It is a noteworthy fact that the clergy and the lawyers, the two classes standing highest in the matter of intellectual culture, were generally on the side of liberty. There was a demand for teachers who would bring their fellow-countrymen up to the ideal of Alcæus of Mitylene, who believed that to constitute a state there is need of

> "Men who their duties know,
> But know their rights, and knowing dare maintain."

This demand was nobly met; but a large portion of the instruction of these teachers was in the shape of what might be called (though not in the antiquarian sense of the term, which confines it mainly to tradition) "oral literature." Phonography was not yet invented, and but few specimens have been preserved of the eloquence which took so prominent a part in preparing the colonists for the approaching crisis, in cheering them during the struggle for independence, and in bringing about a peaceable solution of the important problem which was finally disposed of by the Convention of 1789. The "supposed speeches" which have been kindly manufactured in comparatively recent times, though very creditable to the generosity, and occasionally to the intellectual vigor, of their composers, are scarcely adequate to fill up the vacuum left in the sum total of the results of American literary effort by the lack of verbatim reports of orations many of which would doubtless compare favorably with the best productions of ancient or of modern times. Still, enough has come down to us to show that "there were giants in those days." The eloquence of Patrick Henry, of James Otis, and of other Revolutionary orators, was of no ordinary kind. Otis also excelled as a writer, and his *Vindication of the Conduct of the House of Representatives* (of Massachusetts) is a masterpiece of condensed argument. Of the newspaper essays and pamphlets written by the patriots many fortunately have been preserved. Among the most valuable of these at the present day, and the most effective when they appeared, are the *Common Sense* and *American Crisis* essays of Thomas Payne, written before he published his attack upon religion, in disregard of the sage Franklin's warning that "Among us it is not necessary, as among the Hottentots, that a youth, to be raised into the company of men, should prove his manhood by beating his mother."

The settlement of the form of government, and the gradual recovery of the country from the disastrous effects which are attendant upon even a successful war, when waged not in the enemy's country, but in our own, were doubtless beneficial to the prospects of literature in the youthful

republic; but it was not until the close of the eighteenth century that the first professional "literary man" of the country (who was at the same time the first American novelist) came prominently into view in the person of Charles Brockden Brown. For full information with reference to his works the reader is referred to the admirable essay of Prescott. The fate of his first novel, *Sky-Walk, or the Man Unknown to Himself*, was peculiar and anything but auspicious. The printer, who had made a contract to print the work and to look to the sale for his pay, died when his task was nearly completed. His executors would neither fulfil the contract nor sell the printed sheets at the price offered by the author's friends. The fate of the sheets cannot with certainty be stated, but it can be safely asserted that *Sky-Walk*, under that name, remained "unknown" to the general public. Portions of the unfortunate novel were afterward incorporated by the author in *Edgar Huntley*. Brown's *Wieland* was the first American novel published. It appeared in 1798, and was immediately successful; but the success of a literary venture in those days was not, as at the present day, a sure road to wealth. Brown writes in 1800, "Bookmaking is the dullest of trades, and the most that any American can look for in his native country is to be reimbursed for his unavoidable expenses." The novels of Brown were reprinted in England, where they met with a favorable reception; but the author never derived any pecuniary benefit, so far as is known, from his transatlantic reputation. "Bookmaking" was a dull enough trade in England when Brown wrote the above remark. Less than thirty years had then elapsed since Chatterton, wellnigh starved, had spent his last penny for a dose of arsenic wherewith to commit suicide; and at the present day, if Robert Browning's subsistence depended upon the revenue derived from his works, his supply of food would be little larger than was that of poor Chatterton. It would, however, be unfair to leave the impression that the prospects of authors of merit are not improved in England as well as in America. If in 1667 Milton was glad to sell *Paradise Lost* for five pounds down and fifteen more to be paid by the time that 4300 copies had been sold—while his widow disposed of her whole interest in it for eight pounds—in 1826 Mrs. Rundle received two thousand pounds for *the unexpired term* of the copyright of her *Domestic Cookery*. Even a poet, if popular, sometimes is well rewarded; and making ample allowance for the difference in the value of a given sum of money in 1667 and in 1867, Tennyson has received for any ten lines in some of his later poems more than the whole amount paid to Milton and to his widow for one of the grandest poems ever written in any language. In America the progress in the appreciation of literary merit has been even more marked. In 1850 *The Wide, Wide World* was published, a novel written by Susan Warner, but bearing on its title-page the *nom de plume* "Elizabeth Wetherell." In ten years the sales of this book amounted to

500,000 copies in this country alone, and it was reprinted in England and translated into several foreign languages. We have selected this work as an example because it is one which depended for its popularity simply upon its literary merit, and not upon general interest in any political or theological or metaphysical question. This is, of course, an exceptional case; but if a novel is at all "successful" in this country—*i. e.*, successful when looked at from the publisher's point of view—it has a sale of at least five or ten thousand copies. In the *Galaxy* for April, 1872, Justin McCarthy makes the following statement, which we give for the purpose of comparison: "The whole system of publishing is so different in England from that which prevails in America, our fictitious prices and the controlling monopoly of our great libraries so restrict and limit the sale, that a New York reader would perhaps hardly believe how small a number constitute a good circulation for an English novelist. I assume that, roughly speaking, Reade, Wilkie Collins and Trollope may be said to have about the same kind of circulation—almost immeasurably below Dickens, and below some such abnormal sale as that of *Lothair* or of *Lady Audley's Secret*, but much above even the best of the younger novelists. I venture to think that not one of these three popular and successful authors may be counted on to reach a circulation of two thousand copies. Probably about eighteen hundred copies would be a decidedly good thing for one of Charles Reade's novels." If this be true—and Mr. McCarthy is certainly in a position to know—any one of these novelists has a larger circulation in this country than in England. A British writer who has no hesitation in criticising Americans freely, and who is anything but favorable in many of his criticisms, is forced to acknowledge that "The Americans are emphatically a reading people. All ranks and classes read; all read the daily paper; all are 'posted up' in current events; most read more or less of light literature; not a few read the best standard works in the language. *The best writers of England, it is well known, have more readers in America than at home.*" This fact speaks well for the culture of the Americans, and for the catholicity of their taste. The figures given above show that they are equally appreciative of the merits of American authors.

The first three-fourths of the nineteenth century have indeed been a period of progress for American literature. The practical turn of the American mind is seen in the great number of educational works which have been issued; but no department of mental production has been entirely neglected. Before the century began, the first of Lindley Murray's Grammars had appeared, in which the author (if Goold Brown and George Washington Moon are to believed) furnished another proof of the principle set forth in Portia's remark, "I can easier teach twenty what were good to be done than be one of twenty to follow mine own teaching." If such criticisms are true, the condition of English grammatical science

must have been miserable; for several millions of copies of Murray's Grammar were sold in England during the first fifty years of the nineteenth century, and the work has formed the basis of most of those upon the same subject since published. Since that time each decade has shown a marked advance in the number of authors and in the quantity and quality of the works published. The names of authors who have written works of value crowd upon us so thickly that the shortest mention of them would swell this article far beyond its proper limits. Near the beginning of the century began the literary life of Irving, who, in his later years, twined about the brow of his immortal namesake the most beauteous laurel wreath that History united with Biography ever wove; Fenimore Cooper and other novelists; Bryant, Halleck, Longfellow, Lowell and other poets; among historians, Bancroft and Hildreth and Motley and Prescott (whose almost sightless eyes seem to have left his mental vision clearer and his imagination warmer and brighter), and Kirk, his former secretary, upon whom his mantle has fallen—in short, in every department of literature America is now represented by men who can be favorably compared with their transatlantic brethren.

It was difficult to obtain reliable statistics of the number of books published annually before the enactment of the present copyright law, which obliges those who wish to copyright books to enter them "in the office of the Librarian of Congress at Washington." Before this provision was made the entries were made in the "clerks' offices" of the various District Courts of the United States, some States, therefore, having two places where books could be copyrighted. The reader will at once see the difficulty of obtaining information which lay scattered around in so many different places, to procure which it was necessary to write to the clerk of each and every District Court, and to receive answers from all before the total number was secured. At present (1875) the whole matter can be transacted by mail, at an expense of *one dollar* and "two complete copies of the best edition issued, sent, pre-paid, by mail or express, to the librarian of Congress." Another very important provision of the law, which is a natural result of the above requirements, is that "all records and other things relating to copyrights, and required by law to be preserved, shall be under the control of the Librarian of Congress, and kept and preserved in the library of Congress; and the Librarian of Congress shall have the immediate care and supervision thereof." The statistics of copyrights issued must, therefore, form a portion of his report; and they are annually given to the public, though not always, at least in the first reports, with the same fulness and distinctness. The whole number of books entered in the office of the Librarian of Congress in 1872 was 11,075, classified as follows: Books, 3175; pamphlets, 2728; musical productions, 2312; dramatic pieces, 18; maps and charts, 221;

photographs, engravings, chromos and prints, 2621. Of the report for 1873 the *Annual Cyclopedia* for that year says: "The number of publications entered for copyright was 15,352, an increase of about *ten per cent.* on the entries of the preceding year. This includes not only books and pamphlets, but maps, prints, articles in periodicals, etc., and the aggregate gives no clew to the proportions of each." Now, if the number given for 1872 be correct, the increase, instead of being "about ten per cent.," is 38.53 per cent. As the report of the Librarian of Congress for 1874 gives the number of copyright entries during the year ending December 1, 1874, as 16,283, "being an increase over the entries of the preceding year of 931," the correctness of the total for 1873 (15,352) is proved, so that either the total given for 1872 or the per centage reckoned by the writer in the *Annual Cyclopedia* is wrong. As the entry of all prints and labels intended for use in connection with any article of manufacture was transferred (Aug. 1, 1874) from the office of the Librarian of Congress to that of the Commissioner of Patents, the increase in the copyright business is really greater than is indicated by the figures given above. The previous reports included "several thousand entries annually of mere labels which never had any appropriate relation to copyright protection," and which are now registered in the office of the Commissioner of Patents, to whom "shall be paid for recording the title of any print or label, not a trade-mark, *six dollars*, which shall cover the expense of furnishing a copy of the record, under the seal of the Commissioner of Patents, to the party entering the same." The increase in the value of copyright works is not, however, merely numerical. There is a marked improvement observable in the quality as well as in the quantity of American publications. Our British cousins would do well if they would reconsider the unfavorable dicta with which their literary periodicals are replete —if they would acknowledge the debt owing from both countries to such a work, for instance, as Dr. Allibone's *Critical Dictionary of English Literature and British and American Authors*—if they would realize the fact that this country has advanced intellectually as well as materially; that the language which is the common heritage of Britannia and Columbia has been honored by the best productions of "American Literature."

AMERICAN EDUCATION.

IN the year 1867, which, as a brief calculation will enable the reader to realize, is a date not very much earlier than 1876, there appeared in a book written and published in England, the following statement: "In America it is still possible to win some success with such facility that high training, like high farming, is there thrown away. As the American farmer, with abundance of fertile land, only scratches his ground, so the student is content with a superficial culture of his mind. The exceptions have not as yet been sufficiently numerous to form the nucleus of a really cultivated class or to raise the general standard. It is from this cause, I think, that, whether we study American society or books or history, we are struck with the same phenomenon—the immense number of minds which rise to great practical acuteness and facility compared with the very small number which rise to real originality and thorough cultivation. I do not doubt that this will alter as society comes to a state of equilibrium, but whilst it lasts there is one excellent reason for the paucity of highly-cultivated statesmen in Congress—namely, that there are none in the country. The class from which they should be drawn does not exist."

We have given this statement in full in order to show the spirit which pervades the writings of many British essayists when touching upon this important subject. We are thankful that we are able to state that all English authors have not been so biased in their opinions concerning American culture; but there is little doubt in the mind of any one who has investigated the matter that the ideas contained in the above quotation have obtained in England almost universal acceptance. The reason for this is obvious. The people of England, or at least the writers of that country, do not realize the wonderful advances that have been made in the United States during the past half century in all that pertains to education. Half a century ago, however, a candid Englishman could say: "The effects of the literary institutions of the United States are somewhat peculiar. Few men devote their lives to scholarship. The knowledge that is actually acquired is perhaps quite sufficient for the more practical and useful pursuits. I am inclined to believe that a class of American graduates carries away with it quite as much general and diversified knowledge as a class from one of our own universities. The excellence in particular branches

may be wanting, but *the deficiency is more than supplied by variety of information.*" In another place he says: "Profound scholars are not common. This country possesses neither the population nor the endowments to maintain a large class of learned idlers in order that one man in a hundred may contribute a mite to the growing stock of general knowledge. There is a luxury in this expenditure of animal force to which the Americans have not yet attained. The good is far too problematical and remote to be sought, while the expense of man is certain."

We could not have a better introduction than the foregoing quotation for a brief notice of the early attempts to provide for the educational wants of this country. The life of the first settlers was intensely practical. They had no superabundance of force, mental or physical, to expend upon anything which did not bring in a speedy return. Still, the interests of the rising generation, where education was concerned, were not entirely neglected; for it was less than sixteen years after the landing of the Pilgrim Fathers, and six years after the settlement of Massachusetts Bay, that (Oct. 28, 1636) the General Court of Massachusetts "agreed to give £400 toward a school or college, whereof £200 to be paid the next year and £200 when the work is finished." The bequest of the Rev. John Harvard put the enterprise upon a sure footing—probably its only footing at first (as there is doubt whether the £400 voted by the General Court was ever actually paid)—and the first president, Henry Dunster, was elected in 1640. From this beginning has grown the present Harvard University, with nine departments, its 110 instructors, its 1174 students (in 1874) and its library of more than 200,000 volumes.

The founding of Harvard College was not, however, the first indication of the interest felt by the early settlers in New England in the intellectual welfare of their youth. As early as 1635, according to the records of the town of Boston (then not yet five years old), "it was unanimously resolved that our brother Philemon Purmont should be appointed schoolmaster for the instruction and education of our children." Thirty acres of land were granted at the same time for the support of the schoolmaster. In the year 1642 the General Court (*i. e.*, the House of Representatives of that day) resolved to enjoin the local authorities to "keep a watchful eye on their brothers and neighbors, and above all things to see that there be no family in which so barbarous state of things exists as that the head thereof do not endeavor, either by his own exertions or by the help of others, to impart sufficient instruction to his children and to his servants to enable them to read fluently the English language, *and to acquire a knowledge of the penal laws,* under a penalty of twenty shillings." In 1647, when education had thus been rendered compulsory, the foundation was laid of that system of instruction which exists to this day in Massachusetts in all its essential features, though it has necessarily undergone some modifications. This law

was repeated and re-enacted in the code of 1649, which prescribed that, "It being one chief project of that old deluder Sathan to keep men from the knowledge of the Scriptures, as in former times by keeping them in an unknown tongue, so in these latter times by persuading men from the use of tongues, and *that learning may not be buried in the graves of our fathers,*" therefore every township was required to maintain a school for reading and writing, and every town of a hundred householders a grammar-school, with a teacher "qualified to fit youths for the university." The penalty for non-compliance was at first put at £5 per annum, but was raised, until in 1718 it stood at £40 for every town containing two hundred families. These fines were appropriated for the benefit of schools. In the mean time Virginia, the oldest of the colouies, had not been behindhand in providing means of instruction, private benevolence having supplied the place of a legal enactment. In a letter quoted by the author of *A Perfect Description of Virginia*, and written in that colony in March, 1648, we find the following statement: "I may not forget to tell you that we have a free school, with two hundred acres of land, a fine house upon it and other accommodations to it. The benefactor deserves perpetual memory. His name, Mr. Benjamin Symes, is worthy to be chronicled. *Other petty schools also we have.*"

In Connecticut a law was passed in 1650 relative to the public schools which in its essential features was similar to the one mentioned. The great importance which was attached to educatiou in this State can be judged from the remarkable passage iu their penal code, the famous "Blue Laws," which determines that "if any child or children above sixteen years old and of sufficient understanding shall curse or smite their natural father or mother, he or they shall be put to death, *unless it shall be sufficiently testified that the parents have been very unchristianly negligent in the education of such children*, or so provoke them by extreme and cruel correction that they have been forced thereto to preserve themselves from death or maiming."

In June, 1670, the General Court of the Colony of New Plymouth granted all the profits accruing to the colony "for fishing with nets or seines at Cape Cod for mackerel, bass or herrings, to be improved for and toward a free school in some town of this jurisdiction, *for the training up of youth in literature for the good and benefit of posterity*, provided a beginning were made within one year after the said graut."

The reasons assigned for these various measures to establish schools and to encourage home instruction are highly suggestive. We have italicised them, but repeat them here for comparison and examination: "That learning may not be buried in the graves of our fathers;" that the youth might be enabled "to acquire a knowledge of the penal laws;" that they might be trained up in literature for the "good and benefit of posterity;" these are reasons not unworthy of the most enlightened statesmen living in the

most enlightened age. The full value of the second above given will be realized only when the reader remembers that then was in vogue as now the legal maxim "Ignorance of the law excuses no man." Still more remarkable, then, is the exception—the only merciful exception found in those of the Blue Laws which inflicted capital punishment—which spared the cursing or striking child in whose education his parents had been "very unchristianly negligent." It is like a ray of light gleaming out from the thick darkness which hangs over that portion of this famous code, which, like the oft-mentioned laws of Draco, is written in blood. It is an indication of the presence of that spirit which at the present day pervades the entire nation, and which called forth the strong commendation of a distinguished foreigner, not an Englishman, about a quarter of a century since, expressed in terms so strong that we feel called upon to transcribe them. "When," he says, "the stranger finds that in reality the public schools are one of the most prominent subjects of national pride and satisfaction; that the question of popular education is not of interest only to some few philanthropists and thinkers, is not discussed only in legislative assemblies, but that it forms part of the national life and is considered an important, nay, the most important, concern of the nation,—then he feels that in the depths of American society there are forces at work which in Europe have as yet produced very mediocre results. This is, I think, the highest praise that can be bestowed on the United States. This constitutes the true greatness of the nation and the best guarantee of its stability. The United States are the only communities in the world *which from their very commencement were prepared to establish popular education as one of the fundamental pillars of the social fabric.* They are the only communities in which the highest possible degree of enlightenment among the people has been practically and universally recognized, not only as a very desirable object from the philanthropic point of view, *but also as constituting the principal cog-wheel in the machinery of the state.* In effect, national enlightenment will always, and in every branch of administration, prove the most effective ally of statesmanship."

The progress made was, it must be acknowledged, not always steady or equal. In 1705, for instance, there was no public school at Plymouth; but private enterprise, as is usual in America, came to the rescue. "Sundry inhabitants of Plymouth became bound to pay twenty pounds per annum for seven years to support a school, provided it be settled within forty rods of the old meeting-house; which was agreed to, and a school-house was built by subscription." As the inhabitants of Plymouth were at this period dispersed over an extensive territory, several towns, since taken from it, not then being incorporated, there was, at first, some difficulty in arranging matters, which was finally removed by the following regulations, in which, it will be noticed, the zeal for learning which brought children from a greater

distance than a mile was rewarded with a proportionately lower "school gate," as the money paid for tuition was called: "All children sent to the school (except those of the subscribers to the fund) that live within one mile of the school to pay four pence the week for being taught Latin, writing and ciphering, and two pence the week for reading. All beyond a mile and within two to pay two pence for being taught Latin and one penny for reading, *the poor excepted, who are to come free.* In case a country school be settled by the court before said term of seven years be expired, then these obligations mutually to be void." By "a country school" is meant a public school established by law. The exception made in favor of the poor is an example of the kindly spirit which lies at the basis of all legislation upon this subject, but which is especially noteworthy when shown by the undertakers of what might be considered a private enterprise.

The second college in the United States was William and Mary College, founded at Williamsburg, Va., in 1692. The king and queen after whom the institution was named gave £2000 and 20,000 acres of land, the duty of 1*d.* per pound on all tobacco exported from Virginia and Maryland to the other colonies; and the Surveyor-General's place, which was then vacant. He also granted it the privilege of sending a member to the assembly. The author of *The British Empire in America* says (in 1741): "It proceeded so far that there was a commencement there in the year 1700, at which there was a great concourse of people. Several planters came thither in their coaches and several in sloops from New York, Pennsylvania and Maryland. It being a new thing in America to hear graduates perform their academical exercises, the Indians themselves had the curiosity to come to Williamsburg on this occasion, and the whole country rejoiced as if they had some relish of learning. The professors were to read on all the liberal sciences—on agriculture, architecture, art military, navigation, gardening, trade and manufactures—once a week from Easter to Michaelmas, and twice a week from Michaelmas to Easter. They began upon experiments of plants and minerals, and were assisted by the French of Monachantown. Their own lead, copper and iron mines in the Apallean [Appalachian] Mountains were under their consideration, when the fire put an end to their college and their studies." This fire happened in 1705, but the building was re-erected in 1706, and liberal contributions were made toward its restoration by Queen Anne.

A school system was devised in Maryland in 1694, which was carried into effect in 1723, and for the benefit of which certain export and import duties were imposed. Each county had a board of visitors, seven in number, with power to perpetuate themselves by filling vacancies, and with authority to purchase in each county one hundred acres of land as the site of a boarding-school, and to employ "good schoolmasters, members of the Church of England and of pious and exemplary lives and conversation,

and capable of teaching well the grammar, good writing and mathematics, if such can be conveniently got." Their salary was to be £20 per annum and the use of the tract of land bought. By a subsequent act, passed in 1728, these masters were required, under penalty of dismissal, to teach as many poor children gratis as the visitors should direct. This, though far inferior to the school system of New England, was a far more liberal provision than was elsewhere made at that time for public education.

On the 9th of October, 1701, the General Court of the Colony of Connecticut granted "full liberty and privilege unto certain undertakers for the founding, suitably endowing and ordering a collegiate school within His Majesty's colony of Connecticut, wherein youth may be instructed in the arts and sciences, who, through the blessing of Almighty God, may be fitted for public employments both in Church and civil State. To the intent, therefore, that all due encouragement be given to such pious resolutions, and that so necessary and religious an undertaking may be set forward, supported and well managed, be it enacted," etc. We have given this preamble to show the combined piety and patriotism which actuated these men, and the ceremony which took place in the previous year, and which is deemed by many the true beginning of the college, is correctly described by Baldwin as "peculiarly characteristic of the simplicity of the age." At some time in 1700 ten of the principal ministers were nominated and agreed on by general consent to act as "trustees or undertakers to found, erect and govern a college." They met at Branford, and each trustee "brought a number of books and presented them to the body, and laying them on the table said these words: 'I give these books for the founding a college in this colony.' The number of volumes thus collected consisted of forty folios." Such was the humble beginning of what was destined to be one of the first institutions of learning in the country, not merely in the order of time, but also in the order of merit, of value and of efficiency. The first commencement was held in 1702, at Saybrook. The first student who had taken his whole course at the institution, or at least had not been at any other college, was graduated in 1704. For five years (from 1702 to 1707) the students resided with the rector at Killingworth, while the commencements were held at Saybrook. After that time various arrangements were made until 1718, when a new building was erected at New Haven, and was occupied by the "school" on the 10th of September. In honor of Elihu Yale (a native of New Haven who had gone to England and had become the governor of the East India Company), by whose generosity the trustees had been enabled to complete the edifice, the institution now received the name of Yale College. During the scholastic year of 1874–5 there were 88 instructors and 1031 students in the various departments (103 theological, 53 law and 50 medical, and in the department of philosophy and the arts, 55 graduate and 7 special

students, 537 undergraduate academical students, 248 in the Sheffield Scientific School and 21 in the School of the Fine Arts).

The College of New Jersey, popularly known as "Princeton College," was first incorporated in 1746, and established at Elizabethtown under the presidency of the Rev. Jonathan Dickinson. At first this gentleman and an usher were the only teachers, and the students, about 20 in number, boarded with the president and with other families in the town. In 1747 President Dickinson died, and the institution was removed to Newark, where it remained for ten years under the presidency of the Rev. Aaron Burr; and in 1757, the number of students being 70, it took a new and final departure to Princeton, where during this year Nassau Hall, the first college edifice, was erected. The discipline was somewhat strict in those days, judging by the following extract from the collegiate code of this institution in 1765: "Every scholar shall keep his hat off about ten rods to the president and about five to the tutors. Every scholar shall rise up and make his obeisance when the president goes in or out of the hall or enters the pulpit on days of religious worship. When walking with a superior, they shall give him the highest place; and when first coming into his company they shall show their respect to him by pulling off their hats; shall give place to him at any door or entrance, or, meeting him going up and down stairs, shall stop, giving him the banister (*sic*) side; shall not enter into his room without knocking at the door, or in any way intrude themselves upon him; and shall never be first and foremost in any undertaking in which a superior is engaging or about to engage; shall never use any indecent or rude behavior or action in a superior's presence, such as making a noise, calling loud or speaking at a distance unless spoken to by him if within hearing; shall give a direct, pertinent answer, concluding with SIR!" This college had, during the scholastic year of 1874–5, 19 instructors and (including 25 in the school of science) 408 students.

Dartmouth College in Hanover, N. H., was chartered in 1769. It grew out of a school for the education of Indian children which had previously been established at Lebanon, Conn., by the Rev. Eleazar Wheelock, D. D., who became the first president of the incorporated institution. The charter gave it "all the privileges and immunities of any university within the British realm." In the following year the institution with its 24 students (18 whites and 6 Indians) was removed to Hanover. The number of instructors during the scholastic year of 1874–5 was 35, and of students 457, divided as follows: academical, 265, medical, 78, scientific, 77, agricultural, 33, Thayer department, 4. The number of volumes in the library of Dartmouth is 47,000, and including the collections of the literary societies, etc., the sum total is 53,100 volumes. Yale College, with the same inclusion, has an available magazine of 105,000 volumes, while the "library strength" of Harvard University is 200,000 volumes, as has

been already stated. There are in the United States (according to the *American Educational Cyclopædia* for 1875) 322 colleges and universities, 111 theological seminaries, 37 law schools, 121 normal schools, 39 schools of science (mining, engineering, agricultnral, etc.) which are endowed by the national land-grant, and 28 schools and collegiate departments of science (mining, engineering, etc.) which are not endowed with the national grant of lands. The nnmber of edncational and leading college periodicals is 114. The "national land-grants" are a striking proof of the interest felt by the whole conntry in this important matter. As early as 1785 and 1787 the ordinances passed in these years for the government of "the North-west Territory" set apart "section 16 of every township" for the maintenance of public schools, the act of the second year named asserting that, "religion, morality and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall be for ever encouraged." The States receiving the 16th section were Ohio, Lonisiana, Indiana, Mississippi, Illinois, Alabama, Maine, Missouri, Arkansas, Michigan, Florida, Iowa, Texas, Wisconsin. The 16th and 36th sections were given to California, Minnesota, Oregon, Kansas and Nevada. The 36th section was added by the act of 1848. The 16th section was given to all the States admitted into the Union previons to 1848, and the States admitted and Territories organized since that time have received the two sections instead of one. Besides these grants, sixteen States (Alabama, Arkansas, California, Florida, Illinois, Iowa, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missonri, Nebraska, Nevada, Oregon and Wisconsin) have received 500,000 acres each by the act of 1841, which some of them have added to their school fund, and fonrteen (the same, leaving out Kansas, Nebraska, Nevada and Oregon and adding Indiana and Ohio) have received under the designation of "swamp lands" (by the acts of 1849, 1850 and 1860) an aggregate of 62,428,413 acres, which has also to some extent been devoted to this pnrpose. Besides this assistance for common schools, the ordinance of 1787, already mentioned, set apart "not more than two complete townships of land to be given perpetually for the purposes of a nniversity." Every State organized since the beginning of the centnry has accordingly received the two townships, and it is stated that "Ohio was fortunate enongh to receive three, one while a territory and two on being admitted into the Union, while Florida and Wisconsin appear to have received four each," two apiece having been probably given npon their organization as Territories and two more each when they became States. The aggregate of the lands thus granted to schools amounts to abont 140,000,000 acres, and the permanent school funds of the 18 States which have received lands under one or all of these grants amounts to $43,866,787.55, an average of nearly $2,500,000, the greater part of which is supposed to be de-

rived from this source. The university lands granted by the "two townships" rule amounted to only 1,119,414 acres. Before 1862 no effective condition was attached to these grants. "No method was indicated by which the trust should be fulfilled, nor was any penalty provided against a violation of it." A general condition that the lands were granted "in trust for the schools of the State" appears to have been the only indication usually given of the purpose or object of the donation. The 9,600,000 acres of land granted during and since 1862 have had conditions attached which were somewhat more specific than the vague generality which served as a condition to the previous grants. By the act of 1862, for instance, Congress granted to the several States 30,000 acres of the public lands for each senator and representative in Congress. The lands were to be sold, and the proceeds were to be invested as a perpetual fund for the maintenance of at least one college in each State where the principal object should be, "without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." It is well stated in the *American Educational Cyclopædia*, to which we are indebted for these particulars, that "The broad purpose is to provide for the 'liberal' as well as the 'practical education of the industrial classes,' and that not in any single direction, but 'in the several pursuits and professions in life.' The leading object is to be the promotion of 'agriculture and the mechanic arts,' not necessarily by training a body of apprentices in manual practice, which experience in general shows is attended with too many drawbacks in an educational institution, but by teaching '*such branches of learning as are related to*' these subjects—that is, in short, the whole range of the mathematical, physical and natural sciences, with special reference to their applications in these great branches of human industry." On this basis 35 States had established institutions at the beginning of 1875; and as four of them had divided the fund, endowing therewith two institutions in each of these States instead of one, the whole number of colleges established under this endowment at the date referred to was 39. Thirty-six had been opened. The average value of the endowment, as far as ascertained, was $179,645, the largest being $630,000 and the smallest $50,000. The effect of these endowments has been to awaken the enthusiasm and call forth the benevolence of individuals and communities in behalf of the colleges endowed, contrary to the assertion made by some writers upon this subject that governmental aid to education, and especially to higher education, tends to check individual effort. It has proved that "the aid of the government, wisely bestowed, stimulates and encourages private

beuevolence by giving it a central rallying-poiut and an adequate guaranty of security." Of fifteeu of these institutious, 8 have received contributions or grants from the States in which they are situated amouuting to $1,292,550, aud fourtcen (including seven of the previous class) have received gifts from other sources than their States (such as couuty or town authorities, or private individuals) to the amouut of $3,630,649.86, makiug a grand total of $4,923,199.86, of which sum all except $571,545 was given solely in consequence of the Cougressional land-grant.

At the beginning of 1875 eleven States had compulsory educational laws—viz., California, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Michigan, Texas and Nevada. In New Jersey, New York and California these laws were enacted in 1874. While in the leading colleges opportunities are offered for obtaining the highest degree of literary culture, and in several of them the student can, if he so desires, study Sanscrit, or even Chinese and Japauese, the importance of the common-school system thus supported cannot be overrated. A comparison of the census report of 1850 with that of 1860 furnishes some gratifying results, too pleasing, perhaps, to be accurate, if the returns in 1870 (which took uote of all above ten years of age who could not read and write) can be brought into the comparisou, and be considered in this as in many other respects the most perfect return ever made. In 1850 there were in the United States 1,053,420 persons (twenty years of age and upward) who could not read aud write; native, 858,306; foreign born, 195,114; males, 389,664; females, 573,234; white, 962,898; free colored, 90,522. In 1860 the number of persons twenty years of age aud upward who could not read and write was 1,218,311; native, 871,418; foreign-born, 346,893; white, 1,126,555; free colored, 90,736. It will be seen at a glance that the greater part of this increase was among the foreign-born population, brought about, doubtless, in a great measure by immigration from lands less favored than ours in the matter of education. It will be a difficult matter and will require much explanation to compare these figures with those of 1870. In the first place, as we have already indicated, the number of "illiterates" from *ten* years of age and upward was taken, which, as will be shown, added a considerable number to the sum total. Again, slaves had not been included in the preceding return. The slight increase in the number of free colored illiterates will be noticed upon an examination of the above figures, though the total free colored population increased during the ten years preceding 1860 from 434,495 to 488,070. The addition of the freedmen brought up the number of colored illiterates to a very high figure, as will be seen by the following returns: Number of persons in 1870, ten years of age and upward, who could not read and write, 5,658,144 (1,130,060 could read, but could not write); native, 4,880,271; foreign born, 777,873; white, 2,851,911; colored, 2,789,686. It appears,

then, that nearly one-half of the illiterates were colored people, the greater part, of course, being freedmen, of whose illiteracy no notice had been taken in the previous census. The returns of the census are fuller and more accurate, as we have already mentioned, but it is to be regretted that among the figures given there are very few that can be fairly compared with those of the previous returns. A few statistics are given of illiterates aged 21 years and upward, but none of the native white population of this age. The very slight increase in the number of illiterates among the native whites between 1850 and 1860 (so small, indeed, as to be a *proportional decrease*) showed the benefits of our common-school system, and it would be interesting to follow up the special statistics of the native white illiterates, twenty years of age and upward, which would doubtless give a more favorable showing than any of the returns given above, or, indeed, obtainable anywhere.

A Department of Education was created by an act of Congress approved March 2, 1867, "for the purpose of collecting such statistics and facts as shall show the condition and progress of education in the several States and Territories, and of diffusing such information respecting the organization and management of schools and school systems and methods of teaching as shall aid the people of the United States in the establishment and maintenance of efficient school systems, and otherwise aid the cause of education throughout the country." Dr. Henry Barnard was the first "Commissioner of Education" (as the head of this department is styled), a fitting appointment, as it was he who first secured the insertion of some inquiries respecting the intelligence of the people into the schedules of the census. The difficulties attendant upon the proper performance of the duties of this department were very great. Though it was generally admitted that "commerce, industry, legislation and administration would go back toward barbarism if the care of the young were neglected for a single generation," the lack of specific information with reference to the condition of educational affairs *in the whole country* had "for a long period been a standing complaint among students of American civilization. No officer could make satisfactory replies to foreign inquiries. No statesman could find facts for the formation of his opinions or the guidance of his conduct. There was much pompous boasting of American intelligence, but nobody could exactly describe it." The Commissioner of Education says in his *Report for* 1873: "Almost every one who endeavored to understand the diverse facts in connection with education in this country complained of the lack of a general summary. Great and noble efforts had been made to supply this desideratum; particular features, methods or systems had been examined; some very valuable special statements had been published, but there was no report for my guidance. There was not anywhere in existence any complete list of colleges, academies and high schools; there was

no summary of the work accomplished by the several States and city systems. In 1870, when engaged on my first *Report*, I was told by persons of great intelligence that they considered the reports of Dr. Fraser and M. Hippeau the best to be found on the subject of American education. The preparation of the *Report for* 1870 was like cutting a path through an untrodden forest." Even in the *Report of the Commissioner of Education for* 1873 there is not a complete series of statistics for the whole country, so arranged that the total number of schools, teachers, pupils, etc., could be given. The latest figures procurable are found, therefore, in the census returns for 1870, and by going back to 1850 some idea of the progress made during two decades can be obtained. In 1850 there were 87,257 schools of all classes, with 105,858 teachers, 3,642,694 pupils, and a total aggregate income of $16,162,000 (from endowment, $923,763; from taxation and public funds, $7,590,117; from other sources, $7,648,120). In 1860 there were 115,224 schools, with 150,241 teachers, 5,477,037 pupils, and a total aggregate income of $34,718,112 (from endowment, $2,199,631; from taxation and public funds, $19,929,537; from other sources, $12,588,944). In 1870 there were 141,629 schools, with 221,042 teachers (males, 93,329; females, 127,713), 7,209,938 pupils (males, 3,621,996; females, 3,587,942), and a total aggregate income of $95,402,726 (from endowment, $3,663,785; from taxation and public funds, $61,746,039; from other sources, including tuition, $29,992,902). The number of pupils to each teacher was, in 1850, 34; in 1860, 36; and in 1870, 33. As an evidence of increased interest in educational matters, we call attention to the fact that while the total population of the country increased 35.58 per cent. between 1850 and 1860 and 22.63 per cent. between 1860 and 1870, the school population (number of pupils in the schools) increased 50.03 per cent. during the first decade mentioned and 31.84 per cent. during the second. Taking another method of comparison, it appears that the school population formed, in 1850, 15.70 per cent. of the total population of the country; in 1860, 17.42 per cent., and in 1870, 18.71 per cent. This is really a fairer way of comparing them than by comparing the school population with the number of persons of the "school ages" (from 5 to 18, including persons 5 and excluding persons 18 years of age), for many of the pupils are more than 18 years of age. In America the hope of obtaining an education is not given up by the young man who has neglected his opportunities or has been unable to attend school before the age of 18. A common-school education, at least, is still within his reach, which he can supplement without very much expense by a course at one of the numerous private academies, even if there is no free "high school" in his immediate vicinity. In the common schools instruction is given in the common branches (reading, writing, grammar, orthography, geography and arithmetic), while in many of them the elements of natural phil-

losophy (physics), of chemistry and of other sciences are taught more or less thoroughly, and in many cases with illustrative experiments. In the high schools and academies Latin, frequently Greek, and in some cases French and German, are taught, while the leading colleges are, as we have already indicated, worthy (by the breadth, so to speak, of their course and the number of their departments) of the title of university. It is, however, the common schools of this country which make the distinction between the intellectual condition of the mass of the people of the United States and that of the inhabitants of the most favored countries in Europe. Their value is incalculable when they are looked at from the most utilitarian point of view. "The body-politic has an interest in everything that tends to increase the productive power of the people. As education has this effect by sharpening the perceptive and strengthening the reasoning faculties, as it sets people to observing and thinking, and thereby *enlists the quickening and energized mind as a co-operator and aid to muscular action*, and enlarges men's capacity of creating value, so it is both the interest and the duty of the government to see that no one be allowed to enter the responsible period of life without the means of doing the best for himself and for the state." Dr. Jarvis, from whom we quote, substantiates the italicized statement by illustrations drawn from a variety of occupations, showing that the intelligent wood-splitter, grindstone-turner, coal-heaver, shoveller, scavenger, weaver, carpenter, farmer—in short, that the educated and observant workman in any branch of manual labor—will always have the advantage over the man who works with his hands alone, without calling into requisition the aid of his brains. Another very important point is the relation of pauperism to education, with reference to which subject Dr. Mansfield has ascertained some important facts. Among the most interesting of these are the following: That Scotland, the best-educated country in Europe, has in school 1 in 8 of her population, while the State of Ohio has 2 in 7 or 1 in 3.5; that in England and Wales the proportion is less; that the percentage of paupers in England and Wales is 4.6, while in Ohio it is .7; therefore, that with double the proportion of education, the proportion of paupers in Ohio is only one-sixth of that in England and Wales, and that the totally ignorant among paupers in the Northern, Middle and Western States amount to 60 per cent. of the paupers, while the totally ignorant among the whole population amount to 4.5 per cent. Dr. Mansfield has also turned his attention to the relation of crime to education. It is frequently asserted by those who have given little attention to the subject, and who judge by a few notable instances of learned criminals, that education has not a tendency to decrease the amount of crime committed, and that its only effect will be to render the criminal more powerful, and consequently more dangerous. If any of our readers hold these opinions, we recommend for their perusal the following remarks of Dr. Mans-

field: "If all the legislators, statesmen and preachers in the world knew precisely the state of facts in society, they could legislate and preach with vastly more effect. Hence, in reference to the subject before us, if we had the exact statistics in regard to the whole prior condition of the criminals, we should know almost exactly how crime is caused, and what measures would, if possible, prevent it." In the reports examined by this writer, "the whole number of those who can read only is described as in fact very ignorant. To have learned to spell out words and read a little gives no real knowledge. The prison reports almost uniformly speak of the great number of those who 'read and write' as very deficient in education." He finds that among the inmates of the State prisons and jails of New York and Pennsylvania (deducting the metropolitan police reports) the totally ignorant amounted to 19 per cent.; the totally ignorant and very ignorant combined, 33 per cent.; the very deficient, including the two former classes, 60 per cent. In the central North-west (including the States of Ohio, Indiana, Illinois, Michigan and Wisconsin) the proportions are, totally ignorant, 40 per cent.; totally and very ignorant, 46 per cent.; very deficient (including, as before, the two former classes), 75 per cent. "If the proportion of ignorant criminals to the whole number should prove greatly above that of the illiterate to the whole population, it will be a fact conclusive that ignorance is one great cause of crime. In New York and Pennsylvania, in 1870, 4 per cent. of the population were illiterate and 33 per cent. of the criminals were totally and very ignorant. In the central North-west 3½ per cent. of the population were illiterate and 46 per cent. of the criminals were totally or very ignorant. In the Western and Pacific States, 3 per cent. of the population were illiterate and 31 per cent. of the criminals were totally or very ignorant. In the South, 22 per cent. of the population were illiterate and 60 per cent. of the criminals were totally ignorant." These figures require no comment; and the importance and close connection of the two subjects investigated by Dr. Mansfield are well set forth in the following extract from the *Report of the State Commissioners of Public Charities in Illinois:* "The tendency of education to prevent panperism is more apparent than its tendency to prevent crime. Estimating the panper children at one-tenth of the whole number, and leaving them out of the calculation, 40 per cent. of the inmates of the almshouses could not write and 25 per cent. could not even read. Pauperism and crime are so closely allied that the same individuals belong to both fraternities. Five per cent. of the county paupers acknowledge that they have been in jail. The same man is a criminal or a panper according to circumstances. He steals when he cannot beg, and begs when he cannot steal." As education is, therefore, the deadly enemy of both poverty and crime, every friend of this centenarian republic will note with special pride and satisfaction the progress made in "American education."

GOVERNMENT AND LAWS OF THE UNITED STATES.

Introduction.—The government of the United States is, according to some authorities, "a federal, democratic republic," according to others, "a representative democracy,"—definitions which are not necessarily conflicting, as both denote a government in which the people entrust the administration of affairs to executive and legislative officers of their choice. The powers of these officers are strictly defined by a written act, the Constitution, which was framed by the people through their delegates, adopted by them and can be altered only by them. This instrument we append *in extenso*, nor is it our intention to give a dilution of it in this place, but to furnish such information as cannot be gathered by a careful perusal of it. We strongly recommend to our readers such perusal, as the language used is sufficiently clear for ordinary comprehensions, although, as in many other matters, some very acute intellects discover great difficulties therein. The government is, in treating of it, naturally divided into three departments, the executive, the legislative and the judiciary. The executive department consists of the President, Vice-President and the cabinet officers. The duties of the President (salary $50,000) and of the Vice-President (salary $10,000) are clearly defined by the Constitution. The cabinet officers, whose departments were created by special acts of Congress, require a more extended notice. The salary of each is $10,000 per annum, and their titles are respectively Secretary of State, Secretary of the Treasury, Secretary of War, Secretary of the Navy, Secretary of the Interior, Postmaster-general and Attorney-general. These constitute "the cabinet," a name transferred from the British cabinet, though the functions of the two cabinets as such, but especially their respective relations to the executive, are essentially different. The British cabinet is, for the time being, the government—the head and directing body of the administration, although originally only "that portion of the privy council supposed to possess more particularly the confidence of the sovereign, and to be consulted by him privately on important matters. A vote of "want of confidence" by the House of Commons, or the defeat of any important bill which has received cabinet support, obliges the ministry, as it is called, to resign or dissolve Parliament, and appeal to the people in a new election. They serve, therefore, as scapegoats upon whom to vent the popular indig-

nation at any measure which meets with public disapproval, for "the king can do no wrong," his advisers deserve all the blame, and political decapitation is now the punishment for what, in former times, upon more than one occasion furnished victims for the headsman's axe. In the United States the relation of the cabinet to the executive is of a very different nature. By the Constitution, the President "may require the opinion in writing of the principal officer in each of the executive departments upon any subject relating to the duties of their respective offices." Following out the spirit of this provision, Washington began by consulting the heads of departments upon all important matters, and his successors adopted the practice of holding cabinet meetings to decide upon the course of the administration with reference to all questions of importance. He is not, however, legally or constitutionally bound to follow their advice, nor can he shift upon them the responsibility if an improper measure has been adopted. "The President is responsible for all the measures of government, and whatever has been done by one of the heads of the departments is considered as done by the President through the proper executive agent." The first cabinet contained but three members, the Secretaries of State, of the Treasury and of War, the interior and navy departments not yet having been created, and the Postmaster-general and Attorney-general not yet being considered cabinet officers. All of these heads of departments are appointed by the President, but the appointment must be confirmed by the Senate to make it valid. If the Senate is not in session at the time when the appointment is made, it holds good until that body has an opportunity to take action thereupon.

The Secretary of State.—A "department of foreign affairs" was created by an act of Congress of July 27, 1789. The name was afterward changed (Sept. 15, 1789) to "department of state," as it was made to embrace what in other governments are styled the "department of foreign affairs" and the "home department," a duality of powers which continued until the creation of the "department of the interior." The Secretary of State conducts the making of all treaties between the United States and foreign powers, and corresponds officially with the public ministers of the United States at foreign courts, and with the ministers of foreign powers who are resident in the United States. He is entrusted with the publication and distribution of all the acts and resolutions of Congress, all amendments of the Constitution, and all treaties made and ratified between the United States and any foreign state, prince or power, or with any of the Indian tribes. He preserves the originals of all laws and treaties, and of the public correspondence growing out of the intercourse between the United States and foreign nations, is required to procure and preserve copies of the statutes of the several States, grant passports to American citizens visiting foreign countries, and has charge of the

seal of the United States, but cannot affix it to any commission until signed by the President, nor to any act or instrument without the special authority of the President. Where there is an extradition treaty between the United States and any foreign government, it is lawful for the Secretary of State, under his hand and seal of office, to issue an order for the rendition of any person who has committed within the jurisdiction of said foreign government any crime specified in the treaty, in order that such criminal may be taken out of the United States to the country where the crime has been committed.

The Secretary of the Treasury.—The Treasury Department was created by an act of Congress of Sept. 2, 1789. The Secretary of the Treasury superintends all the fiscal concerns of the government, and recommends to Congress measures for improving the condition of the revenue. All the accounts of the government are finally settled at this department, a portion of the printing of the greenbacks and of the fractional and national currency is here performed, and to attend to these multifarious duties several hundred clerks are required and the following leading officers or subdivisions: The Secretary of the Treasury (who has a general superintendence of the whole), two assistant secretaries and eleven subordinate "bureaus," besides the bureau of statistics (employing thirty-six clerks), by which are issued the admirably arranged and ably edited *Annual Reports on Commerce, Immigration and Navigation*, the bureau of engraving and printing, three comptrollers (the first, the second and the comptroller of the currency), six auditors, a commissioner of the internal revenue, a register of the treasury, and last, though not least, a treasurer (salary $6000), whose well-known signature (for ten years "F. E. Spinner") graces the United States treasury notes. The main sources of revenue are "customs," "internal revenue," "the sale of public lands," and (a large amount, generally more than $20,000,000) "miscellaneous sources." On the 1st of August, 1875, the national debt, less cash in the treasury, was $2,127,393,838.96. A statement of the receipts, expenditures and national debt of this country in various years will be found in the appendix. [See TABLE IV.]

The Secretary of War.—The War Department was created by an act of Congress of Aug. 7, 1789. The Secretary of War (called in the original act the "Secretary for the Department of War," and frequently termed in former times "the Secretary *at* War"), according to the terms of this law "shall perform and execute such duties as shall from time to time be enjoined on or entrusted to him by the President of the United States, agreeably to the Constitution, relative to military commissions or to the land forces, ships [this part was of course repealed by the act creating the Navy Department] or warlike stores of the United States, or to such other matters as the President of the United States shall assign

to the said department; and furthermore, the said principal officer shall conduct the business of the said department in such a manner as the President of the United States shall direct." It has been said that "in times of peace the War Department attracts but little notice." When its paramount importance in time of war is considered, and is compared with its position after peace is declared, this statement may be considered as, in a certain sense, true. There are, however, important duties which are performed by this department which are deemed by many not less valuable to the public welfare than its activity in time of war. It has the superintendence of the construction of fortifications, of the improvement of rivers and harbors, of the erection of lighthouses, of the making of topographical surveys, and of the exploration of the great West. The duties just enumerated are under the charge of the chief of the engineers, and the extent of these operations, as well as their utility, can be easily gathered by a perusal of the exceedingly valuable *Report of the Chief of Engineers*, which annually forms part of the *Report of the Secretary of War*. From this department, and forming a portion of the same *Report*, is issued the *Report of the Chief Signal Officer*, whose forecasting of "Weather Probabilities" is within reach of all readers of the daily papers. The efficiency and value of his sub-department entitle it to a separate article. [See SIGNAL SERVICE BUREAU.]

The regular army of the United States contained on the 9th of October, 1874, according to the adjutant-general's *Report*, 2080 commissioned officers, 25,891 enlisted men, 8 professors and 258 cadets (total, 28,237). The commissioned officers were—1 general, one lieutenant-general, 3 major-generals, 13 brigadier-generals, 69 colonels, 73 lieutenant-colonels, 241 majors, 29 aids-de-camp, 615 captains, 40 adjutants (extra lieutenants), 39 regimental quartermasters (extra lieutenants), 1 battalion-adjutant, 1 battalion quartermaster, 524 first lieutenants and 406 second lieutenants. Small as this number may seem, it has been made smaller; for when, in 1874 (June 16), $105,000 was allowed by Congress for recruiting purposes, it was provided that "no money appropriated by this act shall be paid for recruiting the army above the number of twenty-five thousand enlisted men, including Indian scouts." The general of the army in his *Report* (dated Oct. 24, 1874) says: "I have no doubt that by the 1st of January, 1875, the number of enlisted men will be reduced by the ordinary casualties, discharges and deaths to the number limited by law, viz., 25,000 men." He is not, however, pleased with the change, thinking that "this limit forces the companies to so small a standard that the efficiency of the service is greatly impaired thereby. It is utterly impossible to maintain the companies on remote stations up to the very small legal standard, because months must necessarily elapse after discharges and deaths before recruits can be sent from the general rendezvous." The

army contains ten regiments of cavalry (authorized strength, 845), five regiments of artillery (authorized strength, 520), twenty-five regiments of infantry (authorized strength, from 400 to 500, according to State) and an engineer battalion (authorized strength, 200, though it contained 317 men Oct. 15, 1874). The pay per month of the commissioned officers is as follows: General of the army, $886; lieutenant-general, $756; major-general, $481; brigadier-general, $326.50; colonels of engineers, ordnance, cavalry and light artillery, $227; lieutenant-colonels, $203; majors, $179; captains, $137.50, lieutenants, $120.83; colonels of artillery and infantry (the preceding five salaries applying only to officers of ordnance, engineers, etc.), $212; lieutenant-colonels, $188; majors, $169; captains, $127.50; first lieutenants, $117.50; second lieutenants, $112.50; chaplains (with subsistence), $118. The pay of the privates is $13 per month (with clothing and subsistence). The paymaster-general reports disbursements for the fiscal year ending June 30, 1874, amounting to $13,262,830.44, divided as follows: To the army, $11,782,168.86; to the military academy, $195,928.47; disbursed on treasury certificates, $1,284,733.11. The actual expenditures of the War Department for the year ending June 30, 1873, including river and harbor improvements, were $46,325,308.21; the same for the fiscal year ending June 30, 1874, were $42,326,314.71. The estimates for the military establishment for the year ending June 30, 1875, were $34,410,722.89, and for the year ending June 30, 1876, were $32,488,969. These last statements and estimates include the expenditures of the quartermaster-general's department and other matters which were not in charge of the paymaster-general, who has the care of only the *pay* of the troops. The estimates of the chief of engineers for fortifications, river and harbor improvements, public buildings and grounds and the Washington aqueduct for the fiscal year ending June 30, 1875, were $20,459,396. His estimates for the fiscal year ending June 30, 1876, were $16,471,610.50, divided as follows: Fortifications and other works of defence, $2,108,700; geographical and military surveys, $399,000; improvement of rivers and harbors, $13,285,500; public buildings and grounds and the Washington aqueduct, $678,410.50. The appropriations for the quartermaster-general's department for the year ending June 30, 1874, were $5,498,820.61. This department has charge of transportation and quarters, there being no less than 5000 buildings under its care to be kept in repair, to be renewed as they decay, or to be replaced by others in new positions when abandoned in the course of military movements. The army of the United States may seem very small in numbers when compared with the armaments of the great powers of Europe, but it is in accordance with the genius of the American nation to keep as small a standing army as possible in time of peace, and to trust to the patriotism of the people for supplies of men in time of war. The strength of the United States army

during various years of the civil war and afterward was as follows: Dec. 1, 1861, 660,971 (regulars, 20,334); Aug. 1, 1862, regulars, 43,014, volunteers, 900,000; Oct. 1, 1863, regulars, 40,000, volunteers, 580,000. In 1864 the number was about the same, but the absence of official statements makes it impossible for us to give the number with any approach to exactness. On the 1st of May, 1865, the total number of men in all arms of the service was 1,000,516. The aggregate quotas charged against the several States under all the calls made by the President from April 15, 1861, to April 15, 1865, amounted to 2,759,049, and the aggregate number of men credited on the several calls and put into the service during the same period was 2,656,553. The whole number of colored troops enlisted into the service during the war was 178,975, and the losses within the same period from sickness, desertion or casualties incident to military life amounted to 68,178. By Jan. 9, 1866, the total force of the army, both regular and volunteer, was already reduced to 152,611. Sept. 30, 1867, the total strength of the army was 56,815, including officers and men. Of the great volunteer army which had been so quietly disbanded, but 203 officers and no enlisted men remained in the service. The United States Military Academy at West Point, N. Y., was established by law on the 16th of March, 1802. Its course occupies four years; and in addition to the instructors of artillery, cavalry and infantry tactics, and the professors and assistant professors of military and civil engineering and of mathematics, the "academic staff" contains professors and assistant professors of natural and experimental philosophy, of drawing, of chemistry, mineralogy and geology, of ethics and law, and of the French and Spanish languages. The number of military cadets is 342, as by provision of law each congressional (292) and territorial (10) district, including the District of Columbia, is entitled to have one cadet at the military academy, and no more. This gives 302; and in addition to these, the appointment annually of a number not exceeding *ten* (ten each year during the four years of the course make up the remaining 40) "at large"—*i. e.*, not confined to a selection by congressional districts—is authorized. The district and territorial appointments are made upon the nomination of the member of Congress or delegate representing the district or Territory at the date of appointment, and the law requires that the person selected shall be an actual resident of the district, Territory or District of Columbia from which the appointment purports to be made. Every candidate must be over seventeen and under twenty-two years of age, must be not less than five feet in height, and must be free from any deformity, disease or infirmity which would render him unfit for military service. He must also pass a careful and thorough preliminary examination as to his attainments, being required to be able to read and write well and perform with facility and accuracy the various operations of the four ground rules of arithmetic, of

reduction, of simple and compound proportion, and of vulgar and decimal fractions. The arithmetic is to be studied understandingly, not merely committed to memory; a knowledge of the elements of English grammar, of descriptive geography, particularly of our own country, and of the history of the United States is also required. During the months of July and August the cadets are engaged in military duties and exercises, living in camp. The academic exercises commence at the beginning of September. The semi-annual examination takes place in January. At this time the cadets are rigidly examined in the subjects which they have studied, and the new cadets, if they are found proficient therein (their conduct having been correct in all respects), receive the warrant of cadet; but if any have been unable to master the course, they are pronounced deficient by the academic board, and their connection with the academy ceases. This examination, like all subsequent, ones is very thorough, does not permit any evasion or slighting of the courses, and exacts a very close and persevering attention to study. The examining officers have no option; they *must* reject the deficient. The "annual examination" is held in June. Cadets who have failed to make the requisite proficiency, and who are not likely to succeed in the future, are discharged. The pay of a cadet is $41.66 per month ($500 per annum), with one ration per day, and it is considered sufficient, with proper economy, for his support.

The Secretary of the Navy.—The Naval Department was created by an act of Congress of April 30, 1798, when a war with France was threatened [see HISTORICAL SKETCH, page 110]. The department was organized in the following month, and the secretaryship was offered to George Cabot of Massachusetts, who was very well qualified for the position, but declined the appointment, whereupon it was offered to Benjamin Stoddard (Spencer and others spell this name "Stoddert"), who became (May 21) the first Secretary of the Navy. The first vessel launched under the present organization of the navy was a 44-gun frigate, the *United States*, (July 10, 1798). She was followed on the 7th of September by the *Constellation*, of 38 guns. The whole force authorized by law on the 16th of July, 1798, consisted of twelve frigates, twelve ships of a force between twenty and twenty-four guns, inclusive, and six smaller sloops, besides galleys and revenue-cutters, making a total of thirty active cruisers. The Secretary of the Navy has the same duties to perform in relation to the navy as those of the Secretary of War in relation to the army. It is his duty to execute the President's orders relative to the procurement of naval stores and materials and the construction, armament, equipment and employment of vessels of war, and to superintend all other matters connected with the naval establishment. There are eight bureaus in this department, viz., the Bureau of Yards, the Bureau of Navigation, the Bureau of Ordnance, the Bureau of Provisions and Clothing, the Bu-

reau of Medicine and Surgery, the Bureau of Construction and Repair, the Bureau of Equipment and Recruiting, and the Bureau of Steam Engineering. There is also the Admiral's Office, the Naval Observatory (in charge of a superintendent, a commander, a secretary, two lieutenants and seven professors) and the Hydrographic Office. On the 4th of July, 1861, the total number of vessels of all classes belonging to the navy was 90, carrying or designed to carry 2415 guns. Excluding vessels on the stocks, those unfinished, those used as stationary store-ships and receiving-ships, and those which it was considered inexpedient to repair, the available force was only 69 vessels, carrying 1346 guns. It was "a navy which ranked hardly with that of second-rate European powers." Donald McKay, the American shipbuilder, wrote from London under date of Dec. 3, 1861, a letter concerning the inferiority of the United States navy, and said: "It would be easy for us to build in one year a fleet of 500 to 600 men-of-war ships, from a gunboat to the largest class of iron-cased frigates. It is a well-known fact that we built in one year (1855) the astonishing number of 2034 [2047 according to *Report on Commerce and Navigation*] vessels and steamers of all classes, measuring together 583,450 tons. We would be able in our merchant yards alone to turn out in one year 583 ships of 1000 tons each. In our navy-yards, where the choicest materials are stocked for building a fleet of 100 ships, sixty more might be built in one year, making a total of 643 men-of-war ships of all classes, varying in armament from 3 to 60 guns." Though Mr. McKay's suggestions were not fully carried out, on the 1st of November, 1862, the total number of vessels building and in the service was 284, with a combined armament of 2937 guns. Several ironclads had been built, among them the famous *Monitor* [see HISTORICAL SKETCH, page 139], the specifications for the building of which we herewith give: "Price, $275,000; length of vessel, 174 feet; breadth of beam, 41 feet; depth of hold, 11½ feet; time [within which it was to be completed], 100 days; draught of water, 10 feet; displacement, 1245 tons; speed per hour, 9 statute miles." The Board of Investigation, from whose report the above statement is taken, say: "It is to be apprehended that her properties for sea are not such as a sea-going vessel should possess." This opinion was verified by the sinking of the original monitor, which occurred off the coast of North Carolina during a violent gale (Dec. 31, 1862). It was claimed, however, that the sea-going qualities of monitors subsequently built were much improved. A later report than the preceding one gives as the total number of vessels in the United States Navy "at the close of 1862, 427; number of guns, 3268; total tonnage, 340,036; navy at the close of 1863, 588 vessels, carrying 4443 guns, with a total tonnage of 467,967; increase, exclusive of vessels lost, 161 vessels, 1175 guns and 127,931 tons." They were classed as follows: ironclad steamers, coast service, 46; ironclad steamers, inland service, 29; side-

wheel steamers, 203; screw steamers, 198; sailing vessels, 112. At the close of 1864 the total number of vessels was 671; number of guns, 4610; tonnage, 510,396. The additions to the navy during 1864 had amounted to 109 vessels, carrying 312 guns, and with a tonnage of 55,513; but as the losses by shipwreck, battle, etc., during the same period had been 26 vessels, carrying 146 guns and with a tonnage of 13,084, the actual increase was 83 vessels, 167 guns and a tonnage of 42,429. The number in the naval service was stated at 6000 officers and 45,000 men. After the close of the war the navy was rapidly reduced from the war standard, and at the close of the year 1866 the number of vessels in commission was only 115, carrying 1029 guns. There were 163 other vessels, carrying 1322 guns and classed as follows: Ironclads laid up, 54; ironclads not completed, 7; steam vessels not completed, 19; sailing vessels not completed, 2; wooden vessels on hand, 81. The number of seamen in the service was 13,800. During the same year the navy of the United Netherlands (area, 10,909 square miles) consisted of 146 vessels, carrying 2166 guns. At the end of 1874 the navy of the United States consisted of 163 vessels with 1254 guns; sailing vessels, 26; steam vessels, 137. The Secretary of the Navy reported it to be "in a better condition of effective and permanent strength than it has been for years." He also reported the fighting force of our navy in good and effective condition. During the preceding two years the whole fleet of single-turreted monitors had been thoroughly overhauled and repaired; their sides had been raised up, their rotten wooden beams and decks replaced by iron, and their turrets and machinery put in complete order, so that they were rendered efficient to their utmost capacity, and were ready to go to sea at any time as soon as crews could be put on board and organized. These, with the *Dictator* and *Roanoke*, also in good order, made a fleet of sixteen ironclads, powerful for any naval purpose not requiring long voyages or great speed. Two powerful iron torpedo-vessels had also been completed and were ready for service, fully equipped with this most terrible weapon of modern warfare. Four of the double-turreted monitors (the *Terror*, the *Miantonomoh*, the *Monadnock* and the *Amphitrite*) were also undergoing repairs. Fifteen new and active ships had been added to the cruising navy to take the place of vessels which were worn out and which had to be relieved. Such is the substance of the statements made by the Secretary of the Navy, but Admiral Porter, in his report to the secretary under date of Nov. 6, 1874, "argues that the navy is in a poor condition for war, being greatly inferior to the navies of other countries." He thinks it "imperatively necessary that we should at once provide for building annually so many tons of monitors—say 5000 tons for the present—until we have thirty first-class monster rams of great speed, armed with monster guns, in addition to our present force, and at least fifty iron torpedo-boats of not less than 100

tons, of good speed. The latter should be hauled up under cover, fitted with all the modern improvements and kept for an occasion, while hundreds of others could be improvised in a short time after the commencement of a war. This is partly the system pursued by Great Britain. She builds 20,000 tons of naval vessels annually, and finds it the cheapest way of averting war and protecting and increasing her commerce." The opinion of Admiral Porter is of such weight, even when it is opposed to that of the Secretary of the Navy, that we thought it proper to transcribe this much, at least, of his remarks. The officers of the navy are 1 admiral (salary, $13,000), 1 vice-admiral ($9000), 13 rear-admirals ($6000, ranking with major-generals), 24 commodores ($5000, ranking with brigadier-generals), 50 captains ($4500, ranking with colonels), 90 commanders ($3500, ranking with lieutenant-colonels), 146 lieutenant-commanders ($3000, ranking with majors), 218 lieutenants ($2600, ranking with captains), 100 masters ($2000, ranking with first lieutenants), 35 ensigns ($1400, ranking with second lieutenants), and 113 midshipmen ($1000). The salary of the cadet midshipmen at the Naval Academy is $500 per annum. This institution is situated at Annapolis, Md., and was established in 1845, during the presidency of James K. Polk, when the Hon. George Bancroft was Secretary of the Navy. The number of midshipmen allowed at the academy is one for every member and delegate of the House of Representatives, one for the District of Columbia, ten appointed annually "at large," and ten selected each year from boys who have been at least one year in the service on board a naval vessel. This makes the total number of cadet midshipmen 382. The nomination of candidates for admission from the District of Columbia, from the enlisted boys and at large, is made by the President. The nomination of any other candidate is made on the recommendation of the member or delegate from actual residents of his district or territory. Candidates for appointment as midshipmen must be between 14 and 18 years of age when examined for admission. All candidates for admission are required to certify *on honor* to their precise age previous to examination, and none are examined who are over or under the prescribed age. They must be of good moral character, satisfactory testimonials of which from persons of good repute in the neighborhood of their respective residences must be presented, and such testimonials from clergymen and instructors in high schools and colleges have special weight. They must also pass a satisfactory examination before the academic board in reading, writing, spelling, arithmetic, geography and English grammar—viz., in reading they must read clearly and intelligently from any English narrative work, as, for example, Bancroft's *History of the United States;* in writing and spelling they must write from dictation in a legible hand, and spell with correctness both orally and in writing; in arithmetic they are examined in numeration and the addition,

subtraction, mnltiplication and division of whole numbers and vnlgar and decimal fractions, and in proportion or the rule of three; in geography they are examined as to the leading grand divisions, the continents, oceans and seas, the principal monntains and rivers, and the boundaries and population of the chief nations, their governments, capitals and leading cities; in English grammar they are examined as to the parts of speech and the elementary construction of sentences, and are required to write a short original paragraph. Attention is also paid to the statnre of the candidate, who is reqnired to pass a thorongh medical examination. No one who is manifestly nndersized for his age is received into the academy. In case of doubt abont the physical condition of the candidate, any marked deviation from the nsual standard of height adds materially to the consideration for rejection. The medical board of 1864 adopted the following standard for the height of candidates: 14 years of age, 4 feet 10 inches; 15 years, 5 feet; 16 years, 5 feet 2 inches; 17 years, 5 feet 3 inches; 18 years, (nearly) 5 feet 4 inches; the candidates to be of proportionate size, especially with regard to cerebral, osseous and muscular development; the yonngest to weigh not less than 100 ponnds and the oldest not less than 120 pounds. The board exercises, however, a proper discretion in the application of the above conditions to each case; rejecting no candidate who is likely to be efficient in the service, who is "physically sound, well formed and of robust constitntion, and qnalified to endure the arduons labors of an officer in the navy." On the other hand, no one is admitted who is likely to prove physically inefficient. If both examinations are satisfactory, the candidate receives an appointment as midshipman, becomes an inmate of the academy, and is allowed his actual and necessary travelling expenses to that institntion. He is reqnired to sign articles by which he binds himself to serve in the United States navy for eight years (including his term of probation at the Naval Academy) nnless sooner discharged. If, on the contrary, he fail to pass both of the examinations, he receives neither his appointment nor his travelling expenses, nor can he by law have the privilege of another examination for admission to the same class nnless recommended by the board of examiners. A midshipman who voluntarily resigns his appointment within a year of the time of his admission to the academy is reqnired to refund the amount paid to him for travelling expenses. In addition to the cadet midshipmen, fifty cadet engineers are anthorized by law. Applications for appointment to this grade are received by the Navy Department, addressed to the Secretary of the Navy, and can be made by the candidate or by any person for him. His name is then pnt npon the register, but this gives no assnrance of an appointment, nor is any preference given in the selection to priority of application. The candidate must be not less than eighteen or more than twenty-two years of age, and his application must be accompanied by

satisfactory evidence of moral character and health, with information regarding the date of his birth and the educational advantages which he has hitherto enjoyed. Candidates who receive permission present themselves to the superintendent of the Naval Academy between the 20th and 30th of September for examination as to their qualifications for admission. They are examined in arithmetic, algebra, geometry, rudimentary natural philosophy, the elements of inorganic chemistry, English grammar and English composition, the history of the United States, and a brief outline of ancient and modern history. They are required to exhibit a fair degree of proficiency in pencil-sketching and right-line drawing, and they must be able to describe all the different parts of ordinary condensing and non-condensing engines, explaining their uses and operation, also the ordinary tools used for construction purposes. Upon satisfactorily passing these examinations, the candidate receives an appointment as cadet engineer upon the same conditions as those required of cadet midshipmen, with the exception of binding himself to serve for *six* years in the navy instead of *eight*. The academic course of the cadet engineers comprises two years; that of the midshipmen, four. The pay is the same. The cadet engineer upon graduation immediately receives a warrant as a third assistant engineer in the navy.

The Secretary of the Interior.—The Department of the Interior was established by an act of Congress of March 3, 1849. In this act it was provided that the Secretary of the Interior should perform all the duties heretofore devolving upon the Secretary of State in relation to the office of the Commissioner of Patents—*i. e.*, the Patent-Office was removed to the Department of the Interior. This office is charged with the performance of "all acts and things touching and respecting the granting and issuing of patents for new and useful discoveries, inventions and improvements." The General Land-Office was also transferred hither from the Treasury Department. This office is charged with the survey, management and sale of the public domain, the revision of Virginia military bounty-land claims and the issuing of scrip in lieu thereof. To the Interior Department was also transferred the office of the Commissioner of Indian Affairs, formerly attached to the War Department. This office has charge of all matters connected with "the poor Indian," whom the newspaper reporters, having in mind the famous lines in Pope's *Essay on Man*—

> "*Lo! the poor Indian*, whose untutored mind
> Sees God in clouds or hears him in the wind"—

have nicknamed "Mr. Lo." Besides the commissioner, there are superintendents of Indian affairs and agents over whom the superintendents exercise a directing power. According to Willis, the government has exercised parental care over the Indians by endeavors "to prevent them from

warring upon each other and to induce them to adopt the habits of civilized life. Neither citizens nor foreigners are allowed to reside among them or to trade with them without a license, and frequently valuable presents are made to them of such articles as they need." Judge Willis is so enthusiastic in his praises of the management of Indian affairs that we add another of his statements in his own words: "In order to prevent them [the Indians, not the agents] from squandering their money for rum or useless trinkets, and to save them from being cheated by dishonest traders, the United States government has invested the money paid for their lands in safe and sound stocks, and annually pays them the interest through its superintendents and agents. The disbursement of this interest, called 'Indian annuities,' among the different tribes and individuals to whom it belongs is an important part of the duties of these government agents." The Bureau of Pensions, the duties of which were formerly divided between the War and Navy Departments, has also been transferred to this department. The commissioner of this bureau is charged with the examination and adjudication of all claims arising under the various and numerous laws passed by Congress granting bounty-land or pensions for military or naval service in the Revolutionary and subsequent wars. The Department of the Interior has, besides, the supervision of the accounts of United States marshals and attorneys and of the clerks of the United States courts, the management of the lead and other mines of the United States, the duty of taking and returning the census of the United States (a duty formerly performed by the State Department), and the management of the affairs of public institutions in the District of Columbia.

The Postmaster-General.—To this officer is assigned by the Constitution (art. 1, section 8), or rather by the laws passed by the first Congress in 1789, in accordance with the power therein given to Congress, "the establishment of post-offices and post-roads," and other duties connected with the superintendence of the transmission of the mails. There are three assistant postmasters-general. The first assistant postmaster-general has charge of the *Appointment Office*, which attends to the establishment and discontinuance of post-offices, the appointment and removal of postmasters (having salaries under $1000), the furnishing to offices of marking and rating stamps and letter balances, the supplying of blanks and stationery for the use of the department, and also has the supervision of the ocean mail steamship lines and of foreign and international postal arrangements. The second assistant postmaster-general is over the *Contract Office*, which has charge of the mail service, putting it under contract and attending to all the details of the annual and occasional mail-lettings, of the adjustment and performance of contracts, of applications for the establishment or alteration of mail arrangements, and of the appointment of mail

messengers. The *Inspection Division* of this office receives and examines the registers of the arrival and departure of mails, the certificates of the service of route agents and the reports of mail failures, notes the delinquencies of mail contractors, provides and sends out mail-bags and mail locks and keys, and looks after cases of mail depredation, of violation of the law by private express, and of forging or illegally using postage-stamps. The third assistant postmaster-general is over the *Finance Office*, which supervises all the financial business of the department which is not devolved by law upon the auditor. It has charge of the dead-letter office, of the issuing of postal cards, postage stamps and stamped envelopes for the prepayment of postage, and of the accounts connected therewith. The first postage act, which was passed in 1792, introduced a highly complicated system. The lowest postage was 6 cents to places within 30 miles; 10 cents to places within 100 miles; 12½ cents to places within 150 miles; 15 cents to places within 200 miles; 17 cents to places within 250 miles; 20 cents to places within 350 miles; 22 cents to places within 450 miles; and 25 cents to places more than 450 miles distant. This was for "single letters" (those upon one sheet of paper, whether large or small, without reference to weight), a method of rating letters which was easy enough before the era of envelopes, when the sheet of paper upon which a letter was written was folded over and sealed, the address being written on the back. In 1810 the rates were to some extent simplified, there being six (in the place of the nine just given) as follows: Under 40 miles, 8 cents; under 90, 10 cents; under 150, 12½ cents; under 300, 17 cents; under 500, 20 cents; over 500, 25 cents. In 1816 the following five rates were adopted: A single letter carried under 30 miles, 6¼ cents; under 80, 10 cents; under 150, 12½ cents; under 400, 18¾ cents; over 400, 25 cents, with an additional rate for every additional piece of paper; and if a letter weighed an ounce, 4 times these rates. With a single exception where the postage was increased, these rates continued until 1845, when the half ounce weight was made the standard instead of the number of sheets, and the rate was reduced to 6 cents for letters carried less than 300 miles, and 10 cents for all greater distances, with an additional rate for every additional half ounce or fraction thereof. In 1851 the rates were reduced *upon prepaid letters* to 3 cents for all distances in the United States under 3000 miles, and 6 cents for greater distances. In 1855 prepayment was required, the rate still being 3 cents for distances under 3000 miles, but 10 cents for greater distances. The present rate of 3 cents prepaid by stamp for all distances within the United States was established in 1863. The franking privilege was abolished by an act of Congress of Jan. 27, 1873. Special postage stamps are printed and furnished to each of the executive departments for official correspondence and the transmission of public documents.

The Attorney-General.—This officer has charge of the Department of Justice, in which there are three assistant attorneys-general, a solicitor-general and solicitors of the Treasury, Internal Revenue and the Navy. The duties of this department comprise—official opinions on the current business of the government as called for by the President or by any head of a department; examination of the titles of all lands purchased as the sites of arsenals, custom-houses, light-houses and all other public works of the United States; applications for pardons in all cases of convictions in the courts of the United States; applications for appointment in all the judicial and legal business of the government; the conduct and argument of all suits in the Supreme Court of the United States in which the government is concerned; the supervision of all other suits arising in any of the departments, when referred by the head of such department to the Attorney-General. Occasionally, when a matter of great importance is in question, a special assistant of known ability is commissioned to take charge of the question and give it the minute attention which it demands. In December, 1873, for instance, the Hon. Reverdy Johnson was commissioned by the Attorney-General as special assistant in matters in controversy between the United States and various telegraph companies. The grave questions which had arisen as to the rights of the United States government and the duties of the companies in reference to the telegraphic service of the United States government were submitted for his consideration, and he delivered an opinion thereon and took other official action to bring the matters at issue to a settlement.

Congress.—The powers and duties of Congress are sufficiently set forth in the Constitution (Article I.). The Senate now (1875) consists of 74 members. The number of senators is comparatively easy to follow, there being always two from each State. Both the number of members of the House of Representatives and the number of citizens represented by a member have varied from time to time in a manner which requires a word of explanation. The first apportionment was made in the Constitution itself (Art. I, Section 2). It is the duty of Congress to readjust and reapportion the representatives among the several States every tenth year, or at least after every census, according to the population as shown by the last preceding census. This duty has been performed nine times. In 1792 the apportionment was made upon the ratio of one representative to every 33,000 of *representative* population. The representative population then included all free persons, white or black, and to these were added in the slave States three-fifths of all the slaves. In 1803 the apportionment was made with the same ratio. In 1811 the ratio was fixed at one representative for every 35,000 of the population; in 1822 at one for every 40,000 of the population; in 1832 at one for every 47,000 of the population; and in 1842 at one for every 70,000 of the population. By the law of

May 23, 1850, the number of members was for the first time limited, it being enacted that the number of representatives in Congress should be 233, that the representative population determined by the census of that year should be divided by said number 233, and that the quotient so found should be the ratio of representation for the several States. This quotient was, according to Judge Willis, nearly 94,000, or double the number represented by a congressman in 1833. Under the census of 1860 the ratio thus ascertained was 126,823, and the 233 representatives were thus apportioned, each State, however, being given at least one representative, although it might have less than the full number of representative inhabitants. As it was thought that a closer approximation to a fair proportionate representation of the several States could be obtained by making the number of members 241, the latter number was adopted by the act of March 4, 1862. The admission of Nevada in 1864 and of Nebraska in 1867, with one representative each, brought up the number to 243. In 1872 the number of members of the House of Representatives was fixed at 283, but subsequent amendments, caused by the difficulty in adjusting the respective claims of the several States, brought the number of representatives up to 292, with the following apportionment: Alabama, 8; Arkansas, 4; California, 4; Connecticut, 4; Delaware, 1; Florida, 2; Georgia, 9; Illinois, 19; Indiana, 13; Iowa, 9; Kansas, 3; Kentucky, 10; Louisiana, 6; Maine, 5; Maryland, 6; Massachusetts, 11; Michigan, 9; Minnesota, 3; Mississippi, 6; Missouri, 13; Nebraska, 1; Nevada, 1; New Hampshire, 3; New Jersey, 7; New York, 33; North Carolina, 8; Ohio, 20; Oregon, 1; Pennsylvania, 27; Rhode Island, 2; South Carolina, 5; Tennessee, 10; Texas, 6; Vermont, 3; Virginia, 9; West Virginia, 3; Wisconsin, 8. The increase from 283 to 292 was made by giving an additional member to each of the following 9 States: Alabama, Florida, Indiana, Louisiana, New Hampshire, New York, Pennsylvania, Tennessee and Vermont. The admission of a new State will increase the total number of representatives. "The Tuesday next after the first Monday in November, 1876, is fixed and established as the day in each of the States and Territories for the election of representatives and delegates to the XLVth Congress, and the Tuesday next after the first Monday in November in every second year thereafter is fixed and established as the day for the election in each of the said States and Territories of representatives and delegates to the Congress, commencing on the 4th day of March next thereafter." It is also provided by this act that "no State shall hereafter be admitted to the Union without having the population necessary to entitle it to at least one representative." The average number of "constituents" represented by a member of Congress is 130,533, though the "congressional districts" necessarily vary in size, and in several of the States one or more of the congressmen are elected "at large"—that is, by a vote

of the whole State. This plan obviated the necessity of breaking up districts where such a course was deemed inexpedient. In addition to the representatives from the States, the House admits a delegate from each organized Territory and from the District of Columbia, who has the right to debate on subjects in which his Territory is interested, but not to vote. The salaries of senators and representatives (since the passage of the Salary-Grab Act) are as follows: Speaker of the Senate, *pro tem.*, $10,000; Speaker of the House, $10,000; senators and representatives, $7500 apiece.

United States Courts.—*The Supreme Court* of the United States has original jurisdiction in all cases affecting ambassadors, other public ministers and consuls, and in those in which a State is a party, and appellate jurisdiction in all other cases which can be tried before United States courts. These comprehend all cases in law and equity arising under the Constitution, the laws of the United States and treaties made under their authority; all cases of admiralty and maritime jurisdiction; controversies to which the United States shall be a party; controversies between two or more States, between a State and citizens of another State, between citizens of different States, between citizens of the same State, claiming land under grants of different States, and between a State or the citizens thereof and foreign States or citizens or subjects of the same. Its decisions are final, for there is no superior tribunal upon earth to which an appeal from its *dicta* can be made; and when it has in due form declared how the Constitution must be understood, or how the laws must be interpreted and applied, this decision settles the matter and becomes the law of the land as to the questions involved in the case, continuing so to stand unless or until reversed by the same authority which pronounced it. It consists of a chief-justice (salary, $10,500) and eight associate justices (salary, $10,000 each), who hold office during good behavior, and at stated times receive a compensation which may be increased, but not diminished, during their term of office. *The Circuit Courts* are held twice a year for each State within the circuit. The circuits are nine in number, containing respectively the following States: 1st circuit, Maine, New Hampshire, Massachusetts and Rhode Island; 2d circuit, New York, Vermont and Connecticut; 3d circuit, Pennsylvania, New Jersey and Delaware; 4th circuit, Maryland, Virginia, West Virginia, North Carolina and South Carolina; 5th circuit, Georgia, Florida, Alabama, Mississippi, Louisiana and Texas; 6th circuit, Ohio, Michigan, Kentucky and Tennessee; 7th circuit, Indiana, Illinois and Wisconsin; 8th circuit, Minnesota, Iowa, Missouri, Kansas, Arkansas and Nebraska; 9th circuit, California, Oregon and Nevada. The circuit courts in each circuit are held by the justice of the supreme court allotted to the circuit, or by the justice of the supreme court and the circuit judge sitting together, in which case the former presides, or in

the absence of either of the two judges just named, by the other (who presides) and the district judge. These courts have both original and appellate jurisdiction. Cases may be appealed to them from the district courts. They have concurrent jurisdiction with the State courts where the matter in dispute exceeds $500 and the United States are plaintiffs, or where an alien is a party, or where the suit is between citizens of different States. They have exclusive jurisdiction in all cases of crimes against the laws of the United States, except where the law especially confers this power on other courts. *The District Courts* have exclusive original jurisdiction in all admiralty and maritime causes. Every State constitutes at least one district, several of the larger States being divided into two districts, and some into three. *The Court of Claims* was established by act of Congress in 1855 "to hear and determine all claims founded upon any law of Congress, or upon any regulation of an executive department, or upon any contract, express or implied, with the government of the United States (which may be suggested to it by a petition filed therein); also all claims which may be referred to said court by either house of Congress." There are five justices of this court (salary, $4500 apiece). *The Territorial Courts*, though not courts upon which judicial power is conferred by the Constitution, are United States courts, created by special acts of Congress for each organized Territory. Each consists of a chief-justice and two associate justices, holding office for a term of four years—a fact which shows of itself that these courts are not *constitutional* courts (as Mr. Howard calls those deriving their powers from the Constitution), the judges of which, as the reader will remember, hold office during good behavior. In all the territorial courts there is an appeal to the supreme court of the United States where the value in dispute exceeds one thousand dollars. *The Senate of the United States as a court to try impeachments* is an extraordinary tribunal, the powers and duties of which are described in Article 1, Section 3, of the Constitution [see also HISTORICAL SKETCH, page 147, note].

Laws of the United States.—The jurisprudence of the several States, with the exception of Louisiana, is based upon the common law of England with reference to matters not provided for by statute—*i. e.*, upon the common law of England as brought over by the first settlers and modified to suit the wants of the various communities. Wherever statutes have been made, the common law has been superseded with reference to the particular matters of which the statutes treat. In the same way, but to a less degree, this same common law underlies the jurisprudence of the United States as a collective nation. In the act of 1789, creating the district courts, for instance, occur these words: "Saving to suitors in all cases the right of a *common law remedy* where the *common law* is competent to give it;" also a little further on concurrent jurisdiction with the State

courts is given in "all suits *at common law* where the United States sue, and the matter in dispute amounts, exclusive of costs, to the sum or value of one hundred dollars," etc. Back of all, then, and filling up every gap in the legal barrier against wrong and the legal protection of right, is the common law. The Constitution of the United States is the fundamental law of the land with reference to all matters of which it treats and all inferences which can be fairly drawn from it. It binds not only every citizen, but Congress itself, the law-making power of the government, and, taken together with the various decisions of the supreme court expounding it, it furnishes a body of *constitutional law.* The laws enacted by Congress derive all their force and efficacy from the powers granted to Congress by the Constitution; and if they are not in perfect agreement with the provisions of said Constitution, they can be set aside by the supreme court as soon as a test case involving the principles in question is presented. When they are constitutional they are equally binding in every State and Territory of the United States; and being uniformly applied and executed in all by the United States courts, they form a body of *statute laws.* Treaties made between the United States and foreign nations, and with the Indian tribes, are just as binding by the precepts of international law as any constitutional provision or act of Congress. "The Constitution, and the laws of the United States which shall be made in pursuance thereof, and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land, and judges in every State shall be bound thereby, anything in the Constitution or laws of any State to the contrary notwithstanding" [see CONSTITUTION OF THE UNITED STATES, Article VI.].

The Naturalization Laws.—Foreigners are welcomed in this country with a kindness which it would be difficult for them to find elsewhere. In England an alien, by taking out letters patent *ex donatione regis* (by the gift of the king, not *ex donatione* legis, by the gift of *the law,* as some Blackstones (but not Sharswood's), and even Bouvier's *Law Dictionary* under the word "denizen," have it), "a high and incommunicable branch of the royal prerogative," can attain a sort of half-and-half state, which leaves him neither an alien nor fully naturalized. He can take land by purchase or by devise—*i. e.*, left by will—but not by inheritance—*i. e.*, as legal heir. An alien can be naturalized only by act of Parliament, and even then he cannot hold office. In the United States, on the contrary, aliens are better treated in many of the States than denizens are in England. Their disabilities in respect to holding lands are wholly removed in Connecticut, Florida, Iowa, Maine, Massachusetts, Michigan, New Jersey, Ohio, Pennsylvania and Wisconsin, without requiring even residence. If resident, they can hold lands in California, Kentucky, Mississippi, Missouri, New Hampshire and Texas; and if they

have declared their intention of becoming citizens, they have the same privilege in Arkansas, Delaware, Georgia and South Carolina. In several other States their disabilities are partly removed. For the alien who desires to become a citizen of the United States, theoretically the road is easy enough, and practically it is said to be still easier. Theoretically, an alien, in order to become a citizen, must go before some United States court or some court of record of some State at least two years before his admission to citizenship, and then and there declare on oath or affirmation that it is his intention to become a citizen of the United States, renouncing at the same time all allegiance and fidelity to any foreign prince, potentate, State or sovereignty, and particularly by name the prince, potentate, State or sovereignty whereof such alien may at the time be a citizen or subject. This declaration is recorded by the clerk, and a certificate bearing the seal of the court and signed by the clerk is given him, which states that he has made such a declaration. This certificate is what is commonly known as "first papers" of a foreigner who desires to be naturalized. An applicant who has come to this country before the age of 18 is not required to take out his "first papers," and can be naturalized after a residence of five years, provided that he has reached the age of 21 at the time of making application. The "second papers," or certificate of citizenship, cannot (theoretically) be taken out until the applicant has resided in the United States at least five years. This residence must be proved by other testimony than the oath of the applicant, but one witness is sufficient. He must also prove that he has behaved, during the period of his residence, as a man of good moral character, attached to the principles of the Constitution of the United States. He then swears or affirms the same things as before (with the additional declaration, if he has borne any title of nobility, that he renounces it), also that he will support the Constitution of the United States. The parties are then taken before the judge for the final examination under oath. If the judge is satisfied that the applicant is a man of good moral character, who has resided in this country for the requisite period, he orders, in writing, the admission of the latter to the privileges of citizenship. He is forthwith admitted, and receives a final certificate, bearing the seal of the court and signed by the clerk, which is conclusive evidence thereafter of his citizenship, though it can be set aside if fraudulently obtained. The minor children (those under 21 years of age) of persons naturalized, if such children are then residing in the United States, become citizens by the naturalization of their parents. Such (legally and theoretically) are the length of residence and the legal proceedings required of those who wish to become citizens of the United States. A naturalized citizen is put upon the same footing as a native, with the exception that he is not eligible for the presidency or vice-presidency of the United States.

CONSTITUTION OF THE UNITED STATES.

We, the People of the United States, in order to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defence, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America.

ARTICLE I.

Section 1. All legislative powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

Section 2. The House of Representatives shall be composed of members chosen every second year by the people of the several States, and the electors in each State shall have the qualifications requisite for electors of the most numerous branch of the State legislature.

No person shall be a representative who shall not have attained to the age of twenty-five years, and been seven years a citizen of the United States, and who shall not, when elected, be an inhabitant of that State in which he shall be chosen.

Representatives and direct taxes shall be apportioned among the several States which may be included within this Union, according to their respective numbers, which shall be determined by adding to the whole number of free persons, including those bound to service for a term of years, and excluding Indians not taxed, three-fifths of all other persons. The actual enumeration shall be made within three years after the first meeting of the Congress of the United States, and within every subsequent term of ten years, in such manner as they shall by law direct. The number of representatives shall not exceed one for every thirty thousand, but each State shall have at least one representative; and until such enumeration shall be made, the State of New Hampshire shall be entitled to choose three, Massachusetts eight, Rhode Island and Providence Plantations one, Connecticut five, New York six, New Jersey four, Pennsylvania eight, Delaware one, Maryland six, Virginia ten, North Carolina five, South Carolina five and Georgia three.

When vacancies happen in the representation from any State, the executive authority thereof shall issue writs of election to fill such vacancies.

The House of Representatives shall choose their speaker and other officers; and shall have the sole power of impeachment.

Section 3. The Senate of the United States shall be composed of two senators from each State, chosen by the legislature thereof, for six years; and each senator shall have one vote.

Immediately after they shall be assembled in consequence of the first election, they shall be divided as equally as may be into three classes. The seats of the senators of the first class shall be vacated at the expiration of the second year, of the second class at the expiration of the fourth year, and of the third class at the expiration of the sixth year, so that one-third may be chosen every second year; and if vacancies happen by resignation, or otherwise, during the recess of the legislature of any State, the executive thereof may make temporary appointments until the next meeting of the legislature, which shall then fill such vacancies.

No person shall be a senator who shall not have attained to the age of thirty years, and been nine years a citizen of the United States, and who shall not, when elected, be an inhabitant of that State for which he shall be chosen.

The Vice-President of the United States shall be president of the Senate, but shall have no vote, unless they be equally divided.

The Senate shall choose their other officers, and also a president pro tempore, in the absence of the Vice-President, or when he shall exercise the office of President of the United States.

The Senate shall have the sole power to try all impeachments: when sitting for that purpose, they shall be on oath or affirmation. When the President of the United States is tried, the chief-justice shall preside; and no person shall be convicted without the concurrence of two-thirds of the members present.

Judgments in cases of impeachment shall not extend further than to removal from office, and disqualification to hold and enjoy any office of honor, trust or profit under the United States; but the party convicted shall nevertheless be liable and subject to indictment, trial, judgment and punishment according to law.

SECTION 4. The times, places and manner of holding elections for senators and representatives shall be prescribed in each State by the legislature thereof; but the Congress may at any time, by law, make or alter such regulations, except as to the places of choosing senators.

The Congress shall assemble at least once in every year, and such meeting shall be on the first Monday in December, unless they shall, by law, appoint a different day.

SECTION 5. Each house shall be the judge of the elections, returns and qualifications of its own members, and a majority of each shall constitute a quorum to do business; but a smaller number may adjourn from day to day, and may be authorized to compel the attendance of absent members, in such manner and under such penalties as each house may provide.

Each house may determine the rules of its proceedings, punish its members for disorderly behavior, and, with the concurrence of two-thirds, expel a member.

Each house shall keep a journal of its proceedings, and from time to time publish the same, excepting such parts as may in their judgment require secresy, and the yeas and nays of the members of either house on any question shall, at the desire of one-fifth of those present, be entered on the journal.

Neither house, during the session of Congress, shall, without the consent of the other, adjourn for more than three days, nor to any other place than that in which the two houses shall be sitting.

SECTION 6. The senators and representatives shall receive a compensation for their services, to be ascertained by law and paid out of the treasury of the United States. They shall in all cases, except treason, felony and breach of the peace, be privileged from arrest during their attendance at the session of their respective houses, and in going to and returning from the same; and for any speech or debate, in either house, they shall not be questioned in any other place.

No senator or representative shall, during the time for which he was elected, be appointed to any civil office under the authority of the United States, which shall have been created or the emoluments whereof shall have been increased during such time; and no person holding any office under the United States shall be a member of either house during his continuance in office.

SECTION 7. All bills for raising revenue shall originate in the House of Representatives, but the Senate may propose or concur with amendments as on other bills.

Every bill which shall have passed the House of Representatives and the Senate shall, before it become a law, be presented to the President of the United States; if he approve he shall sign it, but if not he shall return it, with his objections, to that house in which it shall have originated, who shall enter the objections at large on their journal, and proceed to reconsider it. If after such reconsideration two-thirds of that house shall agree to pass the bill, it shall be sent, together with the objections, to the other house, by which it shall likewise be reconsidered, and if approved by two-thirds of that house, it shall become a law. But in all such cases the votes of both houses shall be determined by yeas and nays, and the names of the persons voting for and against the bill shall be entered on the journal of each house respectively. If any bill shall not be returned by the President within ten days (Sundays excepted) after it shall have been presented to him, the same shall be a law, in like manner as if he had signed it, unless the Congress by their adjournment prevent its return, in which case it shall not be a law.

Every order, resolution or vote to which the concurrence of the Senate and House of Representatives may be necessary (except on a question of adjournment) shall be presented to the President of the United States; and

before the same shall take effect, shall be approved by him, or, being disapproved by him, shall be repassed by two-thirds of the Senate and House of Representatives, according to the rules and limitations prescribed in the case of a bill.

SECTION 8. The Congress shall have power to lay and collect taxes, duties, imposts and excises, to pay the debts and provide for the common defence and general welfare of the United States; but all duties, imposts and excises shall be uniform throughout the United States;

To borrow money on the credit of the United States;

To regulate commerce with foreign nations, and among the several States, and with the Indian tribes;

To establish a uniform rule of naturalization, and uniform laws on the subject of bankruptcies, throughout the United States;

To coin money, regulate the value thereof, and of foreign coin, and fix the standard of weights and measures;

To provide for the punishment of counterfeiting the securities and current coin of the United States;

To establish post-offices and post-roads;

To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries;

To constitute tribunals inferior to the supreme court;

To define and punish piracies and felonies committed on the high seas, and offences against the law of nations;

To declare war, grant letters of marque and reprisal and make rules concerning captures on land and water;

To raise and support armies; but no appropriation of money to that use shall be for a longer term than two years;

To provide and maintain a navy;

To make rules for the government and regulation of the land and naval forces;

To provide for calling forth the militia to execute the laws of the Union, suppress insurrections and repel invasions;

To provide for organizing, arming and disciplining the militia, and for governing such part of them as may be employed in the service of the United States, reserving to the States respectively the appointment of the officers and the authority of training the militia according to the discipline prescribed by Congress;

To exercise exclusive legislation, in all cases whatsoever, over such district (not exceeding ten miles square) as may, by cession of particular States and the acceptance of Congress, become the seat of the government of the United States, and to exercise like authority over all places purchased by the consent of the legislature of the State in which the same

shall be, for the erection of forts, magazines, arsenals, dockyards and other needful buildings; and

To make all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this Constitution in the government of the United States or in any department or officer thereof.

SECTION 9. The migration or importation of such persons as any of the States now existing shall think proper to admit shall not be prohibited by the Congress prior to the year one thousand eight hundred and eight, but a tax or duty may be imposed on such importation, not exceeding ten dollars for each person.

The privilege of the writ of habeas corpus shall not be suspended, unless when in cases of rebellion or invasion the public safety may require it.

No bill of attainder or ex post facto law shall be passed.

No capitation or other direct tax shall be laid, unless in proportion to the census or enumeration hereinbefore directed to be taken.

No tax or duty shall be laid on articles exported from any State.

No preference shall be given by any regulation of commerce or revenue to the ports of one State over those of another; nor shall vessels bound to or from one State be obliged to enter, clear or pay duties in another.

No money shall be drawn from the treasury but in consequence of appropriations made by law; and a regular statement and account of the receipts and expenditures of all public money shall be published from time to time.

No title of nobility shall be granted by the United States; and no person holding any office of profit or trust under them shall, without the consent of the Congress, accept of any present, emolument, office or title, of any kind whatever, from any king, prince or foreign state.

SECTION 10. No State shall enter into any treaty, alliance or confederation; grant letters of marque and reprisal; coin money; emit bills of credit; make anything but gold and silver coin a tender in payment of debts; pass any bill of attainder, ex post facto law or law impairing the obligation of contracts or grant any title of nobility.

No State shall, without the consent of the Congress, lay any impost or duties on imports or exports, except what may be absolutely necessary for executing its inspection laws; and the net produce of all duties and imposts laid by any State on imports or exports shall be for the use of the treasury of the United States; and all such laws shall be subject to the revision and control of the Congress.

No State shall, without the consent of Congress, lay any duty of tonnage, keep troops or ships-of-war in time of peace, enter into any agreement or compact with another State or with a foreign power, or engage in war unless actually invaded or in such imminent danger as will not admit of delay.

ARTICLE II.

SECTION 1. The executive power shall be vested in a President of the United States of America. He shall hold his office during the term of four years, and, together with the Vice-President, chosen for the same term, be elected as follows:

Each State shall appoint, in such manner as the legislature thereof may direct, a number of electors, equal to the whole number of senators and representatives to which the State may be entitled in the Congress; but no senator or representative, or person holding an office of trust or profit under the United States, shall be appointed an elector.

[The electors shall meet in their respective States, and vote by ballot for two persons, of whom one at least shall not be an inhabitant of the same State with themselves. And they shall make a list of all the persons voted for, and of the number of votes for each; which list they shall sign and certify, and transmit sealed to the seat of the government of the United States, directed to the president of the Senate. The president of the Senate shall, in the presence of the Senate and House of Representatives, open all the certificates, and the votes shall then be counted. The person having the greatest number of votes shall be the President, if such number be a majority of the whole number of electors appointed; and if there be more than one who have such majority and have an equal number of votes, then the House of Representatives shall immediately choose by ballot one of them for President; and if no person have a majority, then from the five highest on the list the said House shall in like manner choose the President. But in choosing the President, the votes shall be taken by States, the representation from each State having one vote; a quorum for this purpose shall consist of a member or members from two-thirds of the States, and a majority of all the States shall be necessary to a choice. In every case, after the choice of the President, the person having the greatest number of votes of the electors shall be the Vice-President. But if there should remain two or more who have equal votes, the Senate shall choose from them by ballot the Vice-President.*]

The Congress may determine the time of choosing the electors, and the day on which they shall give their votes; which day shall be the same throughout the United States.

No person except a natural-born citizen, or a citizen of the United States at the time of the adoption of this Constitution, shall be eligible to the office of President; neither shall any person be eligible to that office who shall not have attained to the age of thirty-five years and been fourteen years resident within the United States.

In case of the removal of the President from office, or of his death, res-

* See Twelfth Amendment; also HISTORICAL SKETCH, p. 111.

ignation or inability to discharge the powers and duties of the said office, the same shall devolve on the Vice-President, and the Congress may by law provide for the case of removal, death, resignation or inability both of the President and Vice-President, declaring what officer shall then act as President; and such officer shall act accordingly until the disability be removed or a President shall be elected.

The President shall, at stated times, receive for his services a compensation, which shall neither be increased nor diminished during the period for which he shall have been elected, and he shall not receive within that period any other emolument from the United States, or any of them.

Before he enter on the execution of his office, he shall take the following oath or affirmation: "I do solemnly swear (or affirm) that I will faithfully execute the office of President of the United States, and will, to the best of my ability, preserve, protect and defend the Constitution of the United States."

SECTION 2. The President shall be commander-in-chief of the army and navy of the United States, and of the militia of the several States, when called into the actual service of the United States; he may require the opinion, in writing, of the principal officer in each of the executive departments, upon any subject relating to the duties of their respective offices; and he shall have power to grant reprieves and pardons for offences against the United States, except in cases of impeachment.

He shall have power, by and with the advice and consent of the Senate, to make treaties, provided two-thirds of the senators present concur; and he shall nominate, and by and with the advice and consent of the Senate shall appoint, ambassadors, other public ministers and consuls, judges of the supreme court, and all other officers of the United States whose appointments are not herein otherwise provided for, and which shall be established by law; but the Congress may by law vest the appointment of such inferior officers as they think proper in the President alone, in the courts of law, or in the heads of departments.

The President shall have power to fill up all vacancies that may happen during the recess of the Senate, by granting commissions which shall expire at the end of their next session.

SECTION 3. He shall from time to time give to the Congress information of the state of the Union, and recommend to their consideration such measures as he shall judge necessary and expedient; he may on extraordinary occasions convene both houses, or either of them, and in case of disagreement between them with respect to the time of adjournment, he may adjourn them to such time as he shall think proper; he shall receive ambassadors and other public ministers; he shall take care that the laws be faithfully executed, and shall commission all the officers of the United States.

SECTION 4. The President, Vice-President and all civil officers of the United States shall be removed from office on impeachment for and conviction of treason, bribery, or other high crimes and misdemeanors.

ARTICLE III.

SECTION 1. The judicial power of the United States shall be vested in one supreme court, and in such inferior courts as the Congress may from time to time ordain and establish. The judges, both of the supreme and inferior courts, shall hold their offices during good behavior, and shall, at stated times, receive for their services a compensation which shall not be diminished during their continuance in office.

SECTION 2. The judicial power shall extend to all cases, in law and equity, arising under this Constitution, the laws of the United States, and treaties made, or which shall be made, under their authority; to all cases affecting ambassadors, other public ministers and consuls; to all cases of admiralty and maritime jurisdiction; to controversies to which the United States shall be a party; to controversies between two or more States; between a State and citizens of another State; between citizens of different States; between citizens of the same State claiming lands under grants of different States, and between a State, or the citizens thereof, and foreign States, citizens or subjects.

In all cases affecting ambassadors, other public ministers and consuls, and those in which a State shall be party, the supreme court shall have original jurisdiction. In all the other cases before mentioned, the supreme court shall have appellate jurisdiction, both as to law and fact, with such exceptions and under such regulations as the Congress shall make.

The trial of all crimes, except in cases of impeachment, shall be by jury; and such trial shall be held in the State where the said crimes shall have been committed; but when not committed within any State, the trial shall be at such place or places as the Congress may by law have directed.

SECTION 3. Treason against the United States shall consist only in levying war against them, or in adhering to their enemies, giving them aid and comfort.

No person shall be convicted of treason unless on the testimony of two witnesses to the same overt act, or on confession in open court.

The Congress shall have power to declare the punishment of treason, but no attainder of treason shall work corruption of blood, or forfeiture except during the life of the person attainted.

ARTICLE IV.

SECTION 1. Full faith and credit shall be given in each State to the public acts, records and judicial proceedings of every other State. And

the Congress may by general laws prescribe the manner in which such acts, records and proceedings shall be proved, and the effect thereof.

SECTION 2. The citizens of each State shall be entitled to all privileges and immunities of citizens in the several States.

A person charged in any State with treason, felony or other crime, who shall flee from justice and be found in another State, shall, on demand of the executive authority of the State from which he fled, be delivered up, to be removed to the State having jurisdiction of the crime.

No person held to service or labor in one State, under the laws thereof, escaping into another, shall, in consequence of any law or regulation therein, be discharged from such service or labor, but shall be delivered up on claim of the party to whom such service or labor may be due.

SECTION 3. New States may be admitted by the Congress into this Union: but no new State shall be formed or erected within the jurisdiction of any other State, nor any State be formed by the junction of two or more States, or parts of States, without the consent of the legislatures of the States concerned as well as of the Congress.

The Congress shall have power to dispose of and make all needful rules and regulations respecting the territory or other property belonging to the United States; and nothing in this Constitution shall be so construed as to prejudice any claims of the United States or of any particular State.

SECTION 4. The United States shall guarantee to every State in this Union a republican form of government, and shall protect each of them against invasion, and on application of the legislature, or of the executive (when the legislature cannot be convened), against domestic violence.

ARTICLE V.

The Congress, whenever two-thirds of both houses shall deem it necessary, shall propose amendments to this Constitution, or, on the application of the legislatures of two-thirds of the several States, shall call a convention for proposing amendments, which, in either case, shall be valid to all intents and purposes, as parts of this Constitution, when ratified by the legislatures of three-fourths of the several States, or by conventions in three-fourths thereof, as the one or the other mode of ratification may be proposed by the Congress; provided that no amendment which may be made prior to the year one thousand eight hundred and eight shall in any manner affect the first and fourth clauses in the ninth section of the first article, and that no State, without its consent, shall be deprived of its equal suffrage in the Senate.

ARTICLE VI.

All debts contracted and engagements entered into before the adoption of this Constitution shall be as valid against the United States under this Constitution as under the confederation.

This Constitution, and the laws of the United States which shall be made in pursuance thereof, and all treaties made or which shall be made under the authority of the United States, shall be the supreme law of the land; and the judges in every State shall be bound thereby, anything in the constitution or laws of any State to the contrary notwithstanding.

The senators and representatives before mentioned, and the members of the several State legislatures, and all executive and judicial officers, both of the United States and of the several States, shall be bound, by oath or affirmation, to support this Constitution; but no religious test shall ever be required as a qualification to any office or public trust under the United States.

ARTICLE VII.

The ratification of the conventions of nine States shall be sufficient for the establishment of this Constitution between the States so ratifying the same.

Done in convention, by the unanimous consent of the States present, the seventeenth day of September, in the year of our Lord one thousand seven hundred and eighty-seven, and of the independence of the United States of America the twelfth. In witness whereof we have hereunto subscribed our names.

GEORGE WASHINGTON,
President, and Deputy from Virginia.

NEW HAMPSHIRE.
John Langdon,
Nicholas Gilman.

MASSACHUSETTS.
Nathaniel Gorham,
Rufus King.

CONNECTICUT.
William Sam'l Johnson,
Roger Sherman.

NEW YORK.
Alexander Hamilton.

NEW JERSEY.
William Livingston,
David Brearley,
William Paterson,
Jonathan Dayton.

PENNSYLVANIA.
Benjamin Franklin,
Thomas Mifflin,
Robert Morris,
George Clymer,
Thomas Fitzsimons,
Jared Ingersoll,
James Wilson,
Gouverneur Morris.

DELAWARE.
George Reed,
Gunning Bedford, Jr.,
John Dickinson,
Richard Bassett,
Jacob Broom.

MARYLAND.
James McHenry,
Daniel of St. Thos. Jenifer,
Daniel Carroll.

VIRGINIA.
John Blair,
James Madison, Jr.

NORTH CAROLINA.
William Blount,
Richard Dobbs Spaight,
Hugh Williamson.

SOUTH CAROLINA.
John Rutledge,
Charles C. Pinckney,
Charles Pinckney,
Pierce Butler.

GEORGIA.
William Few,
Abraham Baldwin.

Attest: WILLIAM JACKSON, *Secretary.*

AMENDMENTS

To the Constitution of the United States, ratified according to the Provisions of the Fifth Article of the foregoing Constitution.

Article I. Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for redress of grievances.

Article II. A well-regulated militia being necessary to the security of a free State, the right of the people to keep and bear arms shall not be infringed.

Article III. No soldier shall, in time of peace, be quartered in any house without the consent of the owner, nor in time of war but in a manner to be prescribed by law.

Article IV. The right of the people to be secure in their persons, houses, papers and effects against unreasonable searches and seizures shall not be violated, and no warrants shall issue but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

Article V. No person shall be held to answer for a capital or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war and public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor to be deprived of life, liberty or property without due process of law; nor shall private property be taken for public use without just compensation.

Article VI. In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the assistance of counsel for his defence.

Article VII. In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise re-examined in any court of the United States than according to the rules of common law.

ARTICLE VIII. Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

ARTICLE IX. The enumeration in the Constitution of certain rights shall not be construed to deny or disparage others retained by the people.

ARTICLE X. The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

ARTICLE XI. The judicial power of the United States shall not be construed to extend to any suit in law or equity commenced or prosecuted against one of the United States by citizens of another State, or by citizens or subjects of any foreign State.

ARTICLE XII. The electors shall meet in their respective States and vote by ballot for President and Vice-President, one of whom, at least, shall not be an inhabitant of the same State with themselves; they shall name in their ballots the person voted for as President, and in distinct ballots the person voted for as Vice-President, and they shall make distinct lists of all persons voted for as President, and of all persons voted for as Vice-President, and of the number of votes for each, which lists they shall sign and certify, and transmit sealed to the seat of the government of the United States, directed to the president of the Senate. The president of the Senate shall, in the presence of the Senate and House of Representatives, open all the certificates, and the votes shall then be counted; the person having the greatest number of votes for President shall be the President, if such number be a majority of the whole number of electors appointed; and if no person have such a majority, then from the persons having the highest numbers, not exceeding three, on the list of those voted for as President, the House of Representatives shall choose immediately, by ballot, the President. But in choosing the President the votes shall be taken by States, the representation from each State having one vote. A quorum for this purpose shall consist of a member or members from two-thirds of the States, and a majority of all the States shall be necessary to a choice. And if the House of Representatives shall not choose a President, whenever the right of choice shall devolve upon them, before the fourth day of March next following, then the Vice-President shall act as President, as in the case of the death or other constitutional disability of the President. The person having the greatest number of votes as Vice-President shall be the Vice-President, if such number be a majority of the whole number of electors appointed; and if no person have a majority, then from the two highest numbers on the list the Senate shall choose the Vice-President. A quorum for the purpose shall consist of two-thirds of the whole number of senators, and a majority of the whole number shall be necessary to a choice. But no person constitutionally ineligible to the office of President shall be eligible to that of Vice-President of the United States.

ARTICLE XIII. Section 1. Neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

Section 2. Congress shall have power to enforce this article by appropriate legislation.

ARTICLE XIV. Section 1. All persons born or naturalized in the United States and subject to the jurisdiction thereof are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States, nor shall any State deprive any person of life, liberty or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws.

Section 2. Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed; but when the right to vote at any election for the choice of electors for President and Vice-President of the United States, representatives in Congress, the executive and judicial officers of a State or the members of the Legislature thereof is denied to any of the male inhabitants of such State (being twenty-one years of age and citizens of the United States), or in any way abridged, except for participation in rebellion or any other crime, the basis of representation therein shall be reduced in the proportion which the number of such male citizens shall bear to the whole number of male citizens twenty-one years of age in said State.

Section 3. No person shall be a senator or representative in Congress, or elector, or President, or Vice-President, or hold any office, civil or military, under the United States or under any State, who, having previously taken an oath as a member of Congress, or as an officer of the United States, or as a member of any State legislature, or as an executive or judicial officer of any State, to support the Constitution of the United States, shall have engaged in insurrection or rebellion against the same, or given aid or comfort to the enemies thereof; but Congress may, by a vote of two-thirds of each House, remove such disabilities.

Section 4. The validity of the public debt of the United States authorized by law, including debts incurred for payment of pensions and bounties for services in suppressing insurrection or rebellion, shall not be questioned; but neither the United States nor any State shall assume or pay any debt or obligation incurred in aid of insurrection or rebellion against the United States, or any claim for the loss or emancipation of any slave, but all such debts, obligations and claims shall be held illegal and void.

Section 5. The Congress shall have power to enforce by appropriate legislation the provisions of this article.

ARTICLE XV. Section 1. The rights of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color or previous condition of servitude.

Section 2. The Congress shall have power to enforce this article by appropriate legislation.

THE DECLARATION OF INDEPENDENCE.

SO much has been said and written about this famous document—it has furnished the theme of so many Fourth-of-July orations, and has served as the subject of so many essays—that it seems difficult to say or write anything new upon what has been already so thoroughly discussed. Still, we venture to assert that the topic has not been exhausted, and that, exaggerated as some of the eulogistic statements heretofore made may have seemed, they have more often been below the mark than above it. When the power of Great Britain and the weakness of the colonies are considered—when the reader remembers that the patriots were walking on untried ground, with no example in history, except that of the United Netherlands, sufficiently resembling theirs to be of much value as a means of instruction and encouragement—the boldness of the step which they took, and the credit which their leaders deserved, are so forcibly impressed upon the mind as to excuse even the "spread-eagle" flights of oratory, the lavish expenditure of gunpowder and of fireworks, and all other innocent methods by which the American testifies upon the Fourth of July his approbation of the decisive action taken by the patriots upon "Independence Day."

On the 7th of June, 1776, Richard Henry Lee, at the request of his colleagues, and with the special authority of Virginia, offered a series of resolutions, "That these united colonies are, and of right ought to be, free and independent States; that they are absolved from all allegiance to the British Crown, and that all political connection between them and the State of Great Britain is, and ought to be, totally dissolved; that it is expedient forthwith to take the most effectual measures for forming foreign alliances, and that a plan of confederation be prepared and transmitted to the respective colonies for their consideration and approbation." John Adams seconded these resolutions; and the members were enjoined to attend punctually the next day at ten o'clock, in order to take them into consideration. It is a fact suggestive of the lack of sectional feeling in the Congress that these resolutions were moved by a representative man from the South, and seconded by a representative man from the North. The question was debated for several days, and on the 10th of June the decision was postponed for three weeks, to permit some of the delegates to consult their constituents. The resolutions had been opposed, not as bad or improper in themselves, but as premature; and to prevent loss of time, it was

made a condition of the postponement that a committee should during the interval prepare a declaration in harmony with the proposed resolutions. This committee, which was appointed June 11, consisted of Thomas Jefferson, John Adams, Benjamin Franklin, Roger Sherman and Robert R. Livingston. It was elected by ballot; and as Jefferson represented Virginia, from which colony the proposition had gone forth, and as he had been elected by the largest number of votes, to him was allotted the momentous task of writing the Declaration.

The three weeks of delay expired on the 1st of July. A large portion of that day was taken up with what would now be called "personal explanation;" and on the 2d the resolution was adopted, and the completed work of Jefferson came before Congress for revision. Of Jefferson, Bancroft says, after giving him full credit for ability: "The quality which specially fitted him for the task was the sympathetic character of his nature, by which he was able, with instinctive perception, to read the soul of the nation, and having collected in himself its best thoughts and noblest feelings, to give them out in clear and bold words, mixed with so little of himself that his country, as it went along with him, found nothing but what it recognized as its own." He had drafted the Declaration "from the fulness of his own mind," without consulting a single book, and it was reported to Congress on the 28th of June; but its consideration was necessarily postponed until after the adoption of the resolutions. During the remainder of July 2, and upon the two following days, the language, the statements and the principles of the paper were closely examined. Several omissions were made, the most notable of which was that of the following remarkable passage: "He has waged cruel war against human nature itself, violating the most sacred rights of life and liberty in the persons of a distant people who never offended him, captivating them and carrying them into slavery in another hemisphere, or to incur a miserable death in their transportation thither. This piratical warfare, the opprobrium of infidel powers, is the warfare of the Christian king of Great Britain. Determined to keep open a market where men should be bought and sold, he has prostituted his negative for suppressing every legislative attempt to prohibit or restrain this execrable commerce. And that this assemblage of horrors might want no fact of distinguished dye, he is now exciting those very people to rise in arms among us, and to purchase that liberty of which he has deprived them, by murdering the people upon whom he also obtruded them, thus paying off former crimes committed against the liberties of one people by crimes which he urges them to commit against the lives of another." This was struck out because Congress had already manifested its sentiments by the absolute prohibition of the slave-trade, and that prohibition was then respected in every one of the thirteen States. All other changes in the language were either very slight or were improve-

ments, condensing the language or moderating the tone, or correcting slight inaccuracies of statement.

Upon the 4th of July thousands of anxious people, who knew that the final vote would be taken on that day, were gathered in the streets of Philadelphia, anxiously awaiting the announcement of the result. The old bellman took his post in the steeple as soon as Congress convened in the morning, and he had placed a boy at the door below to give him warning when his services were required. The historic bell (now invalided in Independence Hall, but then recently of age, having reached its twenty-third year) hung ready to obey its prophetic motto, and in a manner and to a degree never dreamed of by its designer or its founder, to "Proclaim liberty throughout all the land, to all the inhabitants thereof." Hour after hour passed in anxious expectation. The bellman grew nervous and despondent. "They will never do it! They will never do it!" he said, shaking his head. Suddenly, at nearly two o'clock, a loud shout came up from below. He looked down, and saw the little boy clapping his hands, and heard him shouting, "Ring! Ring!" He did ring; and, to use the words of one who writes as if he had been an eye-witness, "the excited multitude in the streets responded with loud acclamations; and with cannon-peals, bonfires and illuminations the patriots held a glorious carnival that night in the quiet city of Penn."

Within the hall, when the decision was announced, a deep silence pervaded the assembly. It is said that Dr. Franklin was the first to break it, by quaintly remarking, "Gentlemen, we must now all hang together, or we shall surely hang separately." In this observation there is a volume of commentary upon the work which had just been accomplished. The pledge of their lives and fortunes was no empty form of words. By their assenting votes upon the adoption of the Declaration they incurred (should the colonies fail to successfully sustain them) all the penalties of treason inflicted by the English law, confiscation of property, an ignominious death, and corruption of blood—*i. e.*, their children would be rendered incapable of inheriting their property, or, in other words, the confiscation was perpetual.

The Declaration went out to the world with only the signature of John Hancock, the president of Congress. It was afterward engrossed on parchment, and on the 2d of August the fifty-four delegates then present signed it, Thomas McKean, of New Hampshire, and Dr. Thornton, of Maryland, adding their names afterward. An incident which occurred at the time of the signing shows what manner of men they were. Each man, as he affixed his name to the document, knew that he risked putting his neck into the halter; and when Charles Carroll of Carrollton was writing his name, one of the members, who knew that Mr. Carroll was a man of great wealth, said, "There go a few millions." "There are several of the name,"

was the reply. Mr. Carroll overheard this remark, and he immediately took up the pen and wrote after his name, "of Carrollton," so that there could be no possible mistake. It is a remarkable fact that this man, who showed himself so ready to abide by the consequences of this act, was the last survivor of the signers. He died in 1832, at the age of ninety-five.

Many interesting statistics are given in Conrad's introduction to Sanderson's *Biography of the Signers*, from which we shall now condense a few of the most important. They were all natives of America except eight, who had immigrated in youth or in early manhood, and among whom were Robert Morris, John Witherspoon and James Wilson. Of these, two were from England, three from Ireland, two from Scotland and one from Wales. Of those born in America, taking them by sections, sixteen were natives of the Eastern, fourteen of the Middle and eighteen of the Southern colonies. Taking them by States, one was born in Maine, nine in Massachusetts, two in Rhode Island, four in Connecticut, three in New York, four in New Jersey, five in Pennsylvania, two in Delaware, five in Maryland, nine in Virginia and four in South Carolina. Nearly one-half of the number, or twenty-seven, had been regularly graduated in the colleges of Europe or America. The odd seven, or one-fourth of this number, may be credited to Harvard College. Twenty others had educations which, though not regularly collegiate, were at least academic, or by dint of unaided energy, as in the case of Franklin, they had supplied, or more than supplied, the lack of a university course. The condition of life of most of the signers was such as to relieve them from all imputation of selfish motives. Many of them, as Hancock, Carroll, Morris and others, were among the most wealthy in the country. The majority were possessed of an ample competence, and, with very few exceptions, all had, besides life, something to lose, and nothing but liberty to gain, in the conflict which they had invoked.

The pursuits in life of the signers are of interest, as indicating their character and social position and those of the classes and interests which they represented. Twenty-four, or nearly one-half, were lawyers, of whom it has been well said that "they have been the original asserters and most faithful champions of constitutional liberty in all countries." Thirteen were planters and farmers, the former being wealthy land-owners rather than practical agriculturists. Nine were merchants; five, physicians; two, mechanics; one was a clergyman, one a mariner and one a surveyor. Many of these were engaged in mingled pursuits, and nearly all were more or less interested in agriculture.

The age of the signers at the date of the Declaration exhibited a singularly just representation of the different stages of human life. The mass of them were in the most vigorous season of existence, forty-one out of the fifty-six being between the ages of thirty and fifty years, while the youngest (Rutledge) was twenty-seven, and the eldest (Franklin) seventy years of

age. The following statement will give a fair idea of the relative ages of all: From twenty-five to thirty years of age, three; from thirty to thirty-five, eleven; from thirty-five to forty, ten; from forty to forty-five, ten; from forty-five to fifty, ten; from fifty to fifty-five, three; from fifty-five to sixty, two; from sixty to sixty-five, four; from sixty-five to seventy, two. The average age of the signers in July, 1776, was forty-three years and ten months, and their average age at the time of their death was sixty-eight years and four months. Their longevity has been made the subject of frequent remark. They lingered into an age beyond their own, and it seemed a portion of their reward that they should witness the peaceful gathering of the rich harvest in sowing which they had risked all their earthly possessions, as well as the reproach and ignominy which would have been heaped upon them had their country failed to successfully support them.

Of the document itself little need be said. It sets forth the causes for separation in language so firm, yet so moderate—so dignified, yet so forcible—that no words of praise from critic or historian can add to the effect produced upon any one who reads it carefully and with a candid mind. We therefore, without further comment, give the reader an opportunity to peruse the—

DECLARATION OF INDEPENDENCE.

A Declaration by the Representatives of the United States of America, in Congress assembled, adopted July 4, 1776.

When, in the course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth the separate and equal station to which the laws of nature and of nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

We hold these truths to be self-evident—that all men are created equal; that they are endowed by their Creator with certain inalienable rights; that among these are life, liberty and the pursuit of happiness; that to secure these rights governments are instituted among men, deriving their just powers from the consent of the governed; that whenever any form of government becomes destructive of these ends it is the right of the people to alter or abolish it, and to institute a new government, laying its foundations on such principles and organizing its powers in such form as to them shall seem most likely to effect their safety and happiness. Prudence, indeed, will dictate that governments long established should not be changed for light and transient causes; and, accordingly, all experience hath shown that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are

accustomed. But when a long train of abuses and usurpations, pursuing invariably the same object, evinces a desire to reduce them under absolute despotism, it is their right, it is their duty, to throw off such government and to provide new guards for their future security. Such has been the patient sufferance of these colonies, and such is now the necessity which constrains them to alter their former systems of government. The history of the present king of Great Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute tyranny over these States. To prove this, let facts be submitted to a candid world.

He has refused his assent to laws the most wholesome and necessary for the public good.

He has forbidden his governors to pass laws of immediate and pressing importance, unless suspended in their operations till his assent should be obtained; and when so suspended, he has utterly neglected to attend to them.

He has refused to pass other laws for the accommodation of large districts of people, unless those people would relinquish the right of representation in the Legislature—a right inestimable to them and formidable to tyrants only.

He has called together legislative bodies at places unusual, uncomfortable and distant from the repository of their public records, for the sole purpose of fatiguing them into compliance with his measures.

He has dissolved representative houses repeatedly for opposing with manly firmness his invasions on the rights of the people.

He has refused, for a long time after such dissolutions, to cause others to be elected, whereby the legislative powers, incapable of annihilation, have returned to the people at large for their exercise, the State remaining, in the mean time, exposed to all the dangers of invasions from without and convulsions within.

He has endeavored to prevent the population of these States; for that purpose obstructing the laws for the naturalization of foreigners, refusing to pass others to encourage their migration hither and raising the conditions of new appropriations of lands.

He has obstructed the administration of justice, by refusing his assent to laws for establishing judiciary powers.

He has made judges dependent on his will alone for the tenure of their offices and the amount and payment of their salaries.

He has erected a multitude of new offices, and sent hither swarms of officers to harass our people and eat out their substance.

He has kept among us in times of peace standing armies, without the consent of our Legislatures.

He has affected to render the military independent of, and superior to, the civil power.

He has combined with others to subject us to a jurisdiction foreign to our constitutions and unacknowledged by our laws, giving his assent to their acts of pretended legislation:

For quartering large bodies of armed troops among us;

For protecting them, by a mock trial, from punishment for any murders which they should commit on the inhabitants of these States;

For cutting off our trade with all parts of the world;

For imposing taxes on us without our consent;

For depriving us, in many cases, of the benefits of trial by jury;

For transporting us beyond seas to be tried for pretended offences;

For abolishing the free system of English laws in a neighboring province, establishing therein an arbitrary government and enlarging its boundaries, so as to render it at once an example and fit instrument for introducing the same absolute rule into these colonies;

For taking away our charters, abolishing our most valuable laws and altering fundamentally the forms of our governments;

For suspending our own legislatures and declaring themselves invested with power to legislate for us in all cases whatsoever.

He has abdicated government here by declaring us out of his protection and waging war against us.

He has plundered our seas, ravaged our coasts, burned our towns and destroyed the lives of our people.

He is at this time transporting large armies of foreign mercenaries to complete the works of death, desolation and tyranny already begun with circumstances of cruelty and perfidy scarcely paralleled in the most barbarous ages and totally unworthy the head of a civilized nation.

He has constrained our fellow-citizens taken captive on the high seas to bear arms against their country, to become the executioners of their friends and brethren or to fall themselves by their hands.

He has excited domestic insurrection among us, and has endeavored to bring on the inhabitants of our frontiers the merciless Indian savages, whose known rule of warfare is an undistinguished destruction of all ages, sexes and conditions.

In every stage of these oppressions we have petitioned for redress in the most humble terms; our repeated petitions have been answered only by repeated injury. A prince whose character is thus marked by every act which may define a tyrant is unfit to be the ruler of a free people.

Nor have we been wanting in our attentions to our British brethren. We have warned them, from time to time, of attempts by their legislature to extend an unwarrantable jurisdiction over us. We have reminded them of the circumstances of our emigration and settlement here; we have appealed to their native justice and magnanimity, and we have conjured them by the ties of our common kindred to disavow these usurpations,

which would inevitably interrupt our connections and correspondence. They, too, have been deaf to the voice of justice and of consanguinity. We must, therefore, acquiesce in the necessity which denounces our separation, and hold them as we hold the rest of mankind—enemies in war—in peace, friends.

We, therefore, the representatives of the United States of America, in general Congress assembled, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, in the name and by the authority of the good people of these colonies, solemnly publish and declare that these united colonies are, and of right ought to be, free and independent States; that they are absolved from all allegiance to the British Crown, and that all political connection between them and the state of Great Britain is, and ought to be, totally dissolved; and that, as free and independent States, they have full power to levy war, conclude peace, contract alliances, establish commerce and do all other acts and things which independent States may of right do. And for the support of this Declaration, with a firm reliance on the protection of divine Providence, we mutually pledge to each other our lives, our fortunes and our sacred honor.

Signed by
JOHN HANCOCK, of Massachusetts.

NEW HAMPSHIRE.

Josiah Bartlett,
William Whipple,
Matthew Thornton.

MASSACHUSETTS BAY.

Samuel Adams,
John Adams,
Robert Treat Paine,
Elbridge Gerry.

RHODE ISLAND, ETC.

Stephen Hopkins,
William Ellery.

CONNECTICUT.

Roger Sherman,
Samuel Huntingdon,
William Williams,
Oliver Wolcott.

NEW YORK.

William Floyd,
Philip Livingston,
Francis Lewis,
Lewis Morris.

NEW JERSEY.

Richard Stockton,
John Witherspoon,
Francis Hopkinson,
John Hart,
Abraham Clark.

PENNSYLVANIA.

Robert Morris,
Benjamin Rush,
Benjamin Franklin,
John Morton,
George Clymer,
James Smith,
George Taylor,
James Wilson,
George Ross.

DELAWARE.

Cæsar Rodney,
George Read,
Thomas McKean.

MARYLAND.

Samuel Chase,
William Paca,
Thomas Stone,
C. Carroll, of Carrollton.

VIRGINIA.

George Wythe,
Richard Henry Lee,
Thomas Jefferson,
Benjamin Harrison,
Thomas Nelson, Jr.,
Francis Lightfoot Lee,
Carter Braxton.

NORTH CAROLINA.

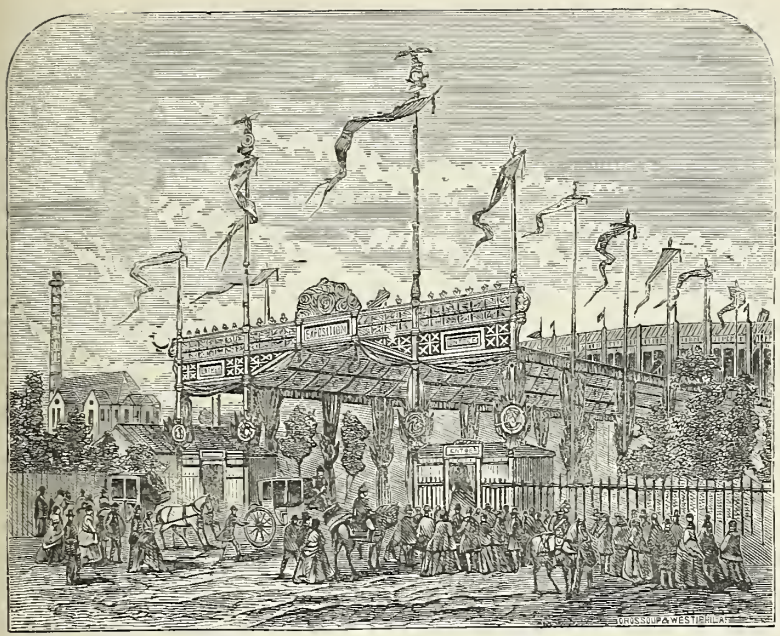
William Hooper,
Joseph Hewes,
John Penn.

SOUTH CAROLINA.

Edward Rutledge,
Thomas Heyward, Jr.,
Thomas Lynch, Jr.,
Arthur Middleton.

GEORGIA.

Button Gwinnett,
Lyman Hall,
George Walton.



Engraved expressly for Burley's United States Centennial Gazetteer and Guide.

PARIS EXPOSITION, 1867.

THE Paris Exposition of 1867 was held on the Champ de Mars, the great military parade-ground of Paris. It occupied thirty-three acres of space besides the Island of Billancourt, which was devoted to the display of agricultural implements. It consisted of a large building, oval in shape, with a small open central garden, around which galleries placed one within another made the entire circuit of the building. Each gallery was devoted to a particular class of manufactures or of works of art, and the nationalities were divided off by avenues radiating from the centre. This enabled visitors to compare the articles exhibited in any one class by all the nations represented by simply following the gallery around until he reached his starting-point. If, on the other hand, he wished to examine all the articles exhibited by any particular nation, he could start from the centre or from the circumference, and attain his object by traversing from end to end one of the avenues bounding the space allotted to that nationality. The outer gallery was loftier and broader than any of the others, was roofed with corrugated iron and lighted with clere-story windows. It was devoted to machinery of all kinds, and to the processes of manufacture in various branches of industry. Outside this circle were placed practical illustrations of the food department in the form of restaurants of all

nations, the exhibition of specimens of food-substances being in small courts within the outer wall, or back to back with the restaurants. There was also a collection of antiquities showing the rise and progress of industrial art in every country. Another very important feature was the park, or out-of-door portion, in which were shown actual examples of the styles of domestic and palatial architecture of most countries, and even the tents of some of the nomadic tribes, such as the Kirghis Tartars and Samoyeds of the Russian Empire, the Bedouin Arabs, etc. The beasts of burden of different nations, such as horses, camels, etc., were also shown, and all kinds of civil and military erections of general importance.

The number of exhibitors was 42,237, and in the quantity, quality and variety of the articles exhibited the Exposition outstripped all its predecessors. The American exhibitors carried off five grand prizes and nearly four hundred medals and "honorable mentions." One of these grand prizes is worthy of special notice on account of the peculiar nature of the requirements to be met by the successful competitor. The emperor of the French proposed ten awards of 10,000 francs each (about $2000 in gold) to ten different "persons, establishments or communities who by means of special arrangements or institutions have improved the mutual good understanding between all the different parties who co-operate in the execution of work, and to all those who have succeeded in ameliorating the material, moral or intellectual condition of the working population." A special jury was appointed from the different countries represented in the Exposition. Five hundred applications were received from France and other countries on the continent of Europe, from Great Britain and from the United States. The recompense awarded consisted of a gold medal with appropriate emblems, a motto and the name of the successful competitor upon it, 9000 francs in money, and a diploma printed on a medallion-card suitable for framing. Nine of the awards were given to France, Germany and other countries in Europe, one to the United States, and none to Great Britain. The name of the American establishment receiving the prize was placed third on the list of successful candidates. This award was among the highest made at the Exposition, and was the highest received by a citizen of the United States. Reliable statistics of this Exposition are difficult to obtain. The figure of 10,000,000 for the number of visitors sounds almost too *decimal* to be correct. Still, it was justly said at its close that it was the greatest of all international exhibitions which had been held up to that time, both with respect to its extent and to the scope of its plan. The information obtained by the special prize which we have described concerning the adjustment of the rights of capital and labor, was well worth all that was expended upon the whole Exposition. The amelioration of the condition of the workingman, with the full co-operation of his employer, is "a consummation devoutly to be wished."

AMERICAN AGRICULTURE.

Early History.—As agriculture in America began with the rude efforts of the aborigines, we could have no more fitting introduction than the following description of the native American system given by an Indian: "As our ancestors had no art of manufacturing any sort of metal, they had no implements of husbandry; therefore they were able to cultivate their lands but little, planting skommon, or Indian corn, beans and little squashes, which work was chiefly left under the management of women and old men who were incapable of hunting, and of little boys. They made use of a bone—either a moose's, bear's or deer's shoulder-blade—instead of a hoe, to hoe their corn with, tying it fast to a stick or helve made for that purpose. When they find that their fields will fail, they prepare another piece of land. In the first place, they make a fire around the foot of every tree on the ground they intend to clear, until the bark of the tree is burnt through. They plant while the trees are standing, after they are killed. As soon as a tree falls they burn it of such a length that they can roll the logs together and burn them up to ashes. This they do till they get the land quite clear. An industrious woman, when a great many dry logs are fallen, can burn off as many logs in one day as a smart man can chop in two or three days' time with an axe. They make use of only an *uthonnetmuhheakun*, or stone axe, with a helve to it like the helve of the hoe already mentioned, with which they rub the coals of the burning logs." Another writer, however, mentions "a clumsy instrument, resembling the axe described, which was made not unfrequently of a large clamshell. With this they were accustomed to dig small holes four feet apart. Those living in the vicinity of the sea-shore put into each hole a horseshoe crab or two, or a fish, upon which they dropped four, and sometimes six, kernels of corn, and covered it with the implement with which they had dug the hole. Beans were planted with the corn after it had come up, and grew up supported by it." The use of the crab for manure is thus described in *A Description of Orleans* (in Barnstable county, Mass.), published in 1802: "The horse-foot, or king-crab, was formerly much used for manuring land set with Indian corn and potatoes, and it is still employed in Orleans, in the south part of Dennis and in other parts of the county. It is chopped into small pieces, and not more than one, sometimes

not more than a quarter, is put into a hill. As it contains an abundance of oil, it affords a strong manure, and with it the light lands may be made to yield twenty bushels of corn to an acre (the yield of these lands without manure being only ten bushels to the acre). It is, however, too hot a manure, and it causes the land to exert itself so much that it cannot easily recover its strength." It is amusing to note that the use of such stimulating fertilizers was made a matter of reproach as early as March, 1648, when the author of *A Perfect Description of Virginia*, after acknowledging that "New England is in a good condition for livelihood," said: "But for matter of any great hopes but fishing, there is not much in that land; for it's as Scotland is to England—so much difference—and lies upon the same land northward as Scotland doth to England. There is much cold, frost and snow, and their land is so barren that *except a herring be put into the hole that you set the corn or maize in, it will not come up.* It was great pity all those people, being now about twenty thousand, did not seat themselves at first to the south of Virginia, in a warm and rich country, where their industry would have produced sugar, indigo, ginger, cotton and the like commodities. And it's now reported in Virginia that thousands of them are removing (with many from the Summer Islands also) unto the Bahama Islands, near the Cape of Florida; and that's the right way for them to go and thrive." In both New England and Virginia the supply of food was at first rather precarious. In the latter province the thirst for gold caused the difficulties elsewhere described [see HISTORICAL SKETCH, p. 93], while the condition of the Pilgrim Fathers during the first few years of their sojourn in the New World is thus depicted by Captain Edward Johnson, upon the same page from which we have already quoted [see HISTORICAL SKETCH, pp. 94, 95]: "You have heard what extreme penury these people were in, at first planting (*sic*), for want of food. Gold, silver, raiment, or whatsoever was precious in their eyes, they parted with when ships came in. For this their beast that died some would stick before they were cold (*sic*), and sell their poor pined flesh for food at sixpence per pound, and Indian beans at 16*s.* per bushel. When ships came in, it grieved some masters to see the urging of them by people of good rank and quality to sell bread unto them." In New England as well as in Virginia the very existence of the settlements depended for a time upon the purchase of supplies of food from the Indians, and the latter were the instructors who initiated the pioneers into the mysteries of the culture of maize, telling them how "to select the finest ears of corn for seed, to plant it at a proper time, to weed it and to hill it." Indian corn was one of the first among the agricultural productions of the country with which the settlers became acquainted. On the 15th of November, more than a month before the disembarkation on Plymouth Rock, an exploring party of sixteen men, under the command of the famous Miles Standish, landed on the coast of Massa-

chusetts and penetrated some distance into the country. In the course of their investigations, their journal says, "We found an heap of sand, which we digged up, and in it we found a little old basket, full of fair Indian corn, and we digged further and found a fine great new basket, full of very fair Indian corn of this year, with some six-and-thirty goodly ears of corn, some yellow and some red, and others mixed with blue, which was a very goodly sight. We took all the ears, and put a good deal of the loose corn into the kettle, for two men to bring away on a staff. Besides, they that could put away into their pockets filled the same." The first attempts of the settlers to cultivate the soil of New England were attended with many hardships. Hubbard, in his *General History of New England*, has some judicious remarks upon the results attained, as compared with the expectations of the colonists, which we transcribe, preserving his quaint orthography: "The generality of the soyle, itt is of a lighter sort of earth, whose fruitefullnesse is more beholding to the influences of the heavens and advantages of the seasonable skill and industry of the husbandmen, then the strength of its own temper. Such as came hither first on discovery, chanced to bee here in the first part of the summer, when the earth was only adorned with its best attire of herbs and flowers, flourishing with all such early fruits which weather-beaten travellers are wont to refresh themselves with the beholding of, as strawberies, goosberies, rasberies, cheries and whorts [whortleberries?]; as they observed that first landed about Martha's Vineyard; whence they promised themselves and theire successors a very flourishing country, as they did that first landed on the coast of Florida. Many places do naturally abound with some of those berryes, as other places with grapes, which gave great hopes of fruitfull vineyards in after time, butt as yet either skill is wanting to cultivate and order the roots of those wild vines, and reduce them to a pleasant sweetnesse, or time is not yet to bee spared to looke after the culture of such fruits as rather tend to the *benè* or *melius esse* [*i. e.*, the welfare or improvement] of a place than to the bare *esse* [*i. e.*, the bare existence] and subsistence thereof. Each season of the yeare so fast, as it were, treading upon the heels of that which went before, that but little time is to bee found to spare for that tillage which is not of absolute necessity, but for pleasure and delight. Yet are all sorts of grayne found to grow pretty naturally there, that are wont to be sowne in the spring season, the cold oft times proving so extreme as it kills all that is committed to the earth before winter, especially in the Massachusetts colony." In spite, however, of the many difficulties arising from the barrenness of the soil and the severity of the climate, much progress was made during the first thirty years after Miles Standish's expedition above mentioned. Captain Edward Johnson, to whom we have several times had occasion to refer, says, in the twenty-first chapter of his *Wonder-working Providence of Zion's Saviour in New England:* "All the forraign

plantations that are of forty, fifty or one hundred years' standing cannot report the like—this remote, rocky, barren, bushy, wild-woody wilderness, a receptacle for lions, wolves, bears, rockoones, bags (*sic*), bevers, otters and all kind of wild creatures—a place that never afforded the natives better than the flesh of a few wild creatures and parch't Indian corn, inch't out (*sic*) with chestnuts and bitter acorns, now become a second England for fertilness, in so short a space that it is indeed the wonder of the world." Again (in book ii., chapter iv., of the same work) he says: "Whereas, at their first coming, it was a rare matter for a man to have four or five acres of corn, now many have four or five score. Then, it was with sore labour that a man could plant and tend four acres of Indian's graine, and now, with two oxen, he can plant and tend thirty. All kinde of graine growes much better than heretofore, inasmuch that marchandizing (*sic*) being stopped at present, *they begin to question what to do with their corne.*" There was, however, great variation in the yield per acre, arising from differences in soil, thoroughness of culture, etc. In Compton, R. I., for instance, according to an account written during the first decade of the present century, an acre often produced more than forty bushels, while the *Description of Eastham*, Mass., after speaking of some "good land" yielding, with manure, thirty-five and sometimes forty-five bushels of Indian corn to an acre, says of another portion of the township: "Several farmers are accustomed to produce five hundred bushels of grain (meaning corn) annually; and not long since, one of them raised *eight hundred bushels* on *sixty acres* (average yield per acre 13⅓ bushels). This, however, was extraordinary, *and may never be done again.*" One great drawback to progress in agriculture was the scarcity of proper implements. In 1632 "the farmers around Boston had no ploughs, and were compelled to break up the bushes and prepare for cultivation with their hands, and with clumsy hoes and mattocks." Five years later there were only thirty-seven ploughs in the colony of Massachusetts Bay. "It was the custom in that part of the country," says Flint, "even to a much later period, for any one owning a plough to go about and do the ploughing for the inhabitants over a considerable extent of territory. A town often paid a bounty to any one who would buy and keep a plough in repair for the purpose of going about to work in this way." The office of public ploughman was no sinecure, for the heavy wooden plough of that period "required a strong and well-fed team to move it through the soil, a heavy, muscular man to press it into the ground, another to hold and another to drive." There were ploughs in Virginia as early as 1617, but the governor wrote that the colony suffered for want of "skilful husbandmen and means to set their ploughs on work, having as good ground as any man can desire, and about forty bulls and oxen; but they wanted men to bring them to labor, and iron for the ploughs, and harness for the cattle. Some thirty or forty acres had we sown with one

plough, but it stood so long on the ground before it was reaped that it was most [*i. e.*, very much] shaken, and the rest spoiled with the cattle and rats in the barn." In a letter written about thirty years later (March, 1648), and appended to the *Perfect Description of Virginia*, we find the following statement, which shows the rapidity of the progress made during the period mentioned: "We have now many thousand acres of clear land (I mean where the wood is all off it), and we have now going near upon a hundred and fifty ploughs, with many brave yoke of oxen, and we sow excellent wheat, barley, rye, beans, peas, oats, and our increase is wonderful, and better grain not in the world." In the preceding paragraph of this same letter occurs the oft-quoted account of the introduction of the culture of rice into this country, which we herewith give as originally written: "The governor, Sir William [Berkeley,] caused half a bushel of rice which he had procured to be sown, and it prospered gallantly; and he had fifteen bushels of it, excellent good rice, so that all these fifteen bushels will be sown again this year, and we doubt not in a short time to have rice so plentiful as to afford it at 2*d.* a pound, if not cheaper, for we perceive the ground and climate is very proper for it, as our negroes affirm, which in their country is most of their food, and very healthful for our bodies." We add some statements found in the *Perfect Description*, from which we learn "that [the Virginians have] of kine, oxen, bulls, calves, twenty thousand, large and good, and they make plenty of butter and very good cheese; that there are of an excellent race about two hundred horses and mares; that of asses for burthen and use there is fifty, but daily increase; that for sheep they have about three thousand, good wool (*sic*); that for goats their number is five thousand, [which] thrive well; that for swine, both tame and wild (in the woods), [they are] innumerable, the flesh pure and good, and bacon none better; that for poultry, hens, turkeys, ducks, geese [they are] without number; that they yearly plough and sow many hundred acres of wheat as good and fair as any in the world, and great increase; that they have plenty of barley and make excellent malt; that their hops are fair and large and thrive well; that they sell their beef at two pence half-penny a pound, pork at three pence a pound plentifully; that their cattle are about the prices of England, and most of the ships that come yearly hither are there victualled; that they have fifteen kinds of fruits, pleasant and good, and with Italy they will compare for delicate fruits; that they have roots of several kinds—potatoes, asparagus, carrots, turnips, parsnips, onions and artichokes; that of herbs they have of all kinds for garden, and *physick flowers* [flowering medicinal plants]; that their maize or Virginia corn, it yields them five hundred for one increase (it's set as we do garden peas), it makes good bread and furmity [properly *frumenty*, "an agreeable composition of boiled wheat, milk, spice and sugar"], it will keep seven years, and malts well for beer, and is

ripe in five months; that they have store of Indian peas, better than ours [in England], beans, lupines and the like. Indigo begins to be planted, and thrives wonderfully well. It grows up to a little tree, and rich indigo is made of the leaves of it. All men begin to get some of the seeds, and know that it will be oftentimes the gain to them, as tobacco is (*and gain now carries the bell*). Their hopes are great to gain the trade of it from the mogul's country, and to *supply all Christendom*, and this will be many thousands of pounds [sterling] in the year." This expectation was but partially realized. Within a century the production of indigo had increased to such an extent that the amount was reckoned by "thousands of pounds [avoirdupois], 100,000 pounds having been exported from Charleston alone in 1741, and in 1747, 134,118 pounds, worth 2*s.* 6*d.* sterling per pound. In 1756 the amount shipped from the same port was 216,924 pounds, and in 1756 North and South Carolina produced 500,000 pounds, and for a few years before the Revolutionary war the annual exports of this article amounted to 1,000,000 pounds. In 1794 the whole Union exported 1,550,880 pounds, but its cultivation speedily declined when brought into competition with the present great staple commodity of the South. Indigo is dead, and cotton is king."

It would be tedious to enter into petty detail with reference to the progress made during a period the results of which are thus summed up by Mr. Watson: "It is, indeed, a lamentable truth that for the most part our knowledge and practice of agriculture at the close of the Revolutionary war were in a state of demi-barbarism, with some solitary exceptions. The labors, I may say, of only three agricultural societies kept alive a spirit of useful inquiry often resulting in useful and practical operations; and yet these measures did not reach the doors of practical farmers to any visible extent." These statements are fully supported by the remarks of Mr. Flint, whose position as secretary of the Massachusetts State Board of Agriculture gave him special and ample facilities for collecting information upon this subject. According to this author, if a man a century ago "ventured to make experiments, to strike out new paths of practice and adopt new methods of culture; if he did not plant just as many acres of corn as his fathers did, and that too 'in the old of the moon;' if he did not sow just as much rye to the acre, raise the same number of oxen to plough and get in his crops on the same day; if he did not hoe as many times as his father did, . . . he was shunned in company by old and young and looked upon as a visionary. The farmer knew nothing of a rotation of crops. The use and value of manures were little regarded. Even so late as within the memory of men still living, the barn was sometimes removed to get it out of the way of heaps of manure by which it was surrounded, because the owner would not go to the expense of removing these accumulations and put them upon his fields. The swine were generally

allowed to run at large. The cattle were seldom or never housed at night during the summer and fall months. The potato-patch often came up to the very door, and the litter of the yard seldom left much to admire in the general appearance of things about the barn or the house. Farmers thought it necessary to let their cattle run at large very late in the fall and to stand exposed to the severest colds of a winter's day, 'to toughen.' It was the common opinion in the Virginia colony that housing and milking cows in the winter would kill them. Orchards had been planted in many parts of the country, but the fruit was, as a general thing, of an inferior quality, and it was used chiefly for the purpose of making cider." Again he says: "No one branch of farming had made any marked and perceptible progress. It has been said that a good strong man could have carried all the implements in use on the farm, except the cart and the old clumsy harrow, upon his shoulders fifty years ago, and we know that many a year occurred when grain and even hay had to be imported from England to keep the people and the cattle from starvation." There were many causes for the slowness of improvement under the colonial system. The population of the country was thin and scattered, and the fisheries and navigation attracted the attention of the colonists who lived near the ocean or its tributary waters. The settler was satisfied if his land produced a crop large enough to supply the necessaries of life, and was thankful if he secured, in addition, a scanty surplus for exportation or for colonial traffic. The slowness and difficulty of intercommunication between the various colonies was another obstacle to general improvement, and the Revolution, in addition to many other benefits, did great service to the general welfare of the people by making them, so to speak, acquainted with each other, by breaking down the barriers of provincialism to this extent, at least, that mutual improvement was secured by an interchange of ideas. Societies were formed for the promotion of "arts, *agriculture* and manufactures," in accordance with recommendations of Congress and of various provincial assemblies. The leaders of the patriots seemed fully alive to the importance of improved methods of cultivation, and many of them were practical agriculturists. General Washington, well named by Byron "the Cincinnatus of the West," is a notable example, and his fondness for agricultural pursuits was so great that Sir John Sinclair says, in his *Reminiscences of Distinguished Contemporaries:* "The peculiar predilection which General Washington so strongly and so frequently expressed for agricultural improvement, which he preferred to every other pursuit, is a circumstance which I am desirous should be recorded for the benefit both of present and future times, from a desire that it might make a due impression on the minds of those who might otherwise be induced to dedicate themselves entirely either to the phantoms of military fame or the tortures of political ambition." In a letter to this gentleman, dated July

20, 1794, President Washington says: "Commons, tithes, tenantry (of which we feel nothing in this country), are in the list of impediments, I perceive, to perfection in English farming, and taxes are heavy deductions from the profit thereof. Of these we have none, or so light as hardly to be felt. Your system of agriculture, it must be confessed, is in a style superior, and of course much more expensive, than ours, but when the balance at the end of the year is struck by deducting the taxes, poor rates and incidental charges of every kind, from the produce of the land in the two countries, no doubt can remain in which scale it is to be found. It will be some time, I fear, before an agricultural society, with congressional aids, will be established in this country. We must walk, as other countries have done, before we can run. Smaller societies must prepare the way for greater; but, with the lights before us, I hope we shall not be so slow in maturation as older nations have been. An attempt, as you will see by the enclosed outline of a plan, is making to establish a State society in Pennsylvania for agricultural improvement. If it succeeds, it will be a step in the ladder. At present it is too much in embryo to decide on the result. Our domestic animals as well as our agriculture are inferior to yours in point of size; but this does not proceed from any defect in the stamina of them, but from deficient care in providing for their support, experience having abundantly evinced that where our pastures are as well improved as the soil and climate will admit, where a competent store of wholesome provender is laid up and proper care used in serving it, that our horses, black cattle, sheep, etc., are not inferior to the best of their respective kinds which have been imported from England. Nor is the wool of our sheep inferior to that of the common sort with you. As a proof, after the peace of Paris, in 1783, and my return to the occupations of a farmer, I paid particular attention to my breed of sheep (of which I usually kept about seven or eight hundred). By this attention, at the shearing of 1789 the fleeces yielded me the average quantity of 5¼ pounds of wool; a fleece of which, promiscuously taken, I sent to Mr. Arthur Young, who put it, for examination, into the hands of manufacturers. These pronounced it to be equal in quantity to the Kentish wool. In this same year (*i. e.*, 1789) I was again called from home, and have not had it in my power since to pay any attention to my farm, the consequence of which is that my sheep, at the last shearing, yielded me not more than 2½ pounds. This is not a single instance of the differences between care and neglect; nor is the difference between good and bad management confined to that species of stock; for we find that good pastures and proper attention can and do fill our markets with beef of seven, eight and more hundred weight the four quarters, whereas from 450 to 500 (especially in States south of this, where less attention has hitherto been paid to grass) may be found about the average weight. In this market, some bullocks were

killed in the months of March and April last, the weights of which, as taken from the accounts which were published at the time, you will find in a paper inclosed. These were pampered steers, but from 800 to 1000 the four quarters is no uncommon weight." It must be borne in mind that the Mr. Young to whom the fleece was sent was not an American. He was the great authority in England upon all agricultural questions, and the manufacturers to whom the fleece was shown were *British* manufacturers, who certainly had no prejudice in favor of this country. General Washington corresponded for many years with Mr. Young upon these and kindred subjects, and even after the elevation of the former to the presidency he still continued to devote as much time as he could spare from the arduous duties of his office to the collection of information and statistics with reference to his favorite occupation. Mr. Young made an elaborate calculation which proved to his satisfaction that the net profit from 300 acres of land in England, after the deduction of taxes and all other expenses, was £323 10*s*., or 5.15 per cent. on the combined capital of the landlord and tenant (£6240), while in America the net profit after similar deductions had been made was £206 14*s*., or 10.55 per cent. on the capital of £1951, the farmer being his own landlord. The price of labor in America was considered as double the rates in England, but land (which is included in both estimates of capital) was so much cheaper in this country that the increased cost of labor was more than balanced by smallness of the capital required. Another calculation made by Mr. Young was not so favorable, and elicited a spicy reply, which is not signed in the copy of this correspondence which is before us, but which, from its style and from allusions to it in Washington's letters, we judge to be the work of Mr. Richard Peters (of "Belmont, 6 miles from Philadelphia," says the heading to another of his letters). President Washington had written to several gentlemen in various sections of the country for statements of the expenses, productions and net profits of an ordinary farm in their respective neighborhoods, and had then sent these returns to Mr. Young. The reply of the latter is filled with expressions of astonishment and with criticisms of the various accounts. He says: "Is it possible that the inhabitants of a great continent, who live only to hunt, to eat and to drink, can carry on farming and planting as a business, and yet never calculate the profit they make by *percentage* on their capital? And yet this seems to be the case. The farm in Bucks county is such as an Englishman would not accept, for it carries on the face of the account which I have drawn out a dead loss, and not an inconsiderable one; yet the whole labor of a family of five persons is thrown away in order to arrive at that loss." It is difficult for Mr. Young to realize the extraordinary fertility of land in Virginia at this time (1793), and he is therefore unwilling to admit an account rendered by Mr. Jefferson. "How can Mr. Jefferson produce annually 5000 bushels of wheat,

worth £750, by means of a cattle product worth only £125? I do not want to come to America to know that this is simply impossible; at the commencement of a term it will do, but how long will it last?" He strongly recommends the breeding of sheep as much more profitable than the production of grain, saying: "Surely, the enormous rise in the price of wool in England and Holland for two years past must affect America and instigate an increase in the breed of sheep. The freight when pressed into a smaller compass is a trifle, and the price is now such that a fleece alone from American lands, without reckoning the carcase at anything, must be more valuable than the *profit* on a crop of wheat of eight or ten bushels an acre on all lands that will produce white clover spontaneously." To the criticisms of Mr. Young Jefferson replied with characteristic mildness. He says: "Mr. Young has never had an opportunity of seeing how slowly the fertility of the *original* soil is exhausted, with moderate management of it. I can affirm that the James River low grounds, with the cultivation of small grain, will never be exhausted, because we know that under that cultivation we must now and then take them down with Indian corn, *or they become, as they were originally, too rich to bring wheat.* The highlands where I live *have been cultivated about sixty years.*" Mr. Young had begun his criticism with the following sentences: "Your information has thrown me afloat on the *high seas.* To analyze your husbandry has the difficulty of a problem." From the reply of Mr. Peters,* which we have mentioned (that he was the author is rendered certain by a detached note found in another part of the book), we condense the following statements: "I know not where to land Mr. Young from his sea voyage unless facts well known and *felt* here, serving as pilots to guide him into a safe and pleasant harbor, will enable him to arrive on a shore pleasant in its prospects and abundant in its resources, not so much indebted to art as to nature for its beauties and conveniences. Much land is to be had for little money; our political arrangements contribute to our happiness and to our moderate but competent wealth. We have no princes to indulge the grades more immediately beneath them in their pleasures and their passions, that they may themselves be supported at the expense of the nation in their schemes of luxury and ambition; no overgrown nobles to wanton on the hard earnings of an oppressed yeomanry. Our laws are generally liberal in their policy. We have no narrow arrangements which, under false notions of national convenience or shadowy and miscalculated political restrictions, palsy agriculture and commerce by preventing those who possess the products of the country from disposing of what their labor has created, *when, where* and

* This eminent jurist was equally eminent as an agriculturist. Through his instrumentality the use of gypsum in agriculture and the cultivation of clover were introduced into the United States. He was president of the Philadelphia Society for the Improvement of Agriculture.

how they please. Our farmers are the proprietors of the soil they cultivate; they gather the honey, shear the sheep and guide the plough for themselves alone. *They increase the value of their capital while they labor for their sustenance.* They do not, indeed, *receive* an annual interest or revenue on their capital, but they *pay* none; yet by their exertions for their own support and accommodation, and the growing population and improvement of the country (to which every one, stranger as well as native, contributes), more than a European percentage is added to their principal, insomuch that farms will increase, in very many parts of the country, tenfold in their value in less than twenty years. Immense tracts of new land have been recently sold by the State of Pennsylvania at less than an English shilling per acre. I know valuable tracts of great extent, within a few days' ride of Philadelphia, which may be had at from 3 to 9*s.* sterling per acre. They are for the most part level, and so luxuriant in pasturage that, maugre [*i. e.*, in spite of] our winters, cattle now pass that season in prime order without cover or artificial forage. Mr. Y.'s farm, or even his sixty acres and the sheep he snmmered on it, will bny him a little territory, and his capital in ten years will be increased 500 per cent. This is not a bad percentage, nor is it a visionary calculation. I wish not to throw out fallacious temptations, but to relate facts, merely to show why our farmers need not make nice calculations abont percentage. They have now, and always have had, a sure resource for the wear of their seaboard farms, etc., *in the growth of their families.* Children, in Europe, are often a bnrden and an expense. *The wealth of a great part of the American farmers grows with the additions to their families.* The children assist in the labor of the old farm or in the establishment of the new one. This snpersedes the necessity of calculating on hired laborers, the work being chiefly done within themselves. *They are paid by the increased value of the common stock.* The easy situation of an industrious, full-handed American farmer is the pleasing result of a combination produced by all the causes I have mentioned. Instead of calculating, he labors and enjoys. And though I do not profess to have a good opinion of the style of American husbandry, yet even this shows the happy situation, in other respects, of our country. With such farming in Europe the farmers would starve, and leave their children common laborers or beggars. And yet here they live well and leave their descendants the means of obtaining the comforts and conveniencies of life. This is the problem I have endeavored to solve, and I could not but by this circnitons route arrive at the answer to Mr. Y.'s question, 'Is it possible that the inhabitants of a great continent not new settlers, who, of course, *live to hunt, to eat and to drink*, can carry on farming as a business, and yet never calculate the profit they make by percentage on their capital?' Our *hunters* are only a few borderers, and not to be connted on as farmers; nor are our farmers, though they have not the best systems, *idle.* I there-

fore think (without meaning a *critique*) '*who eat and drink to live*' would have been a more just arrangement of language." We offer no apology for taking up so much space with this spirited defence of American farming, written nearly a hundred years ago, but just as forcible, in many points, at the present day as it was in 1793. Mr. Peters' remarks upon sheep-breeding are equally interesting. Mr. Young had said, in recommending this branch, "Mountains are no objection on account of wolves, for the Pyrenees are full of both sheep and wolves." Mr. Peters' reply, referring as it does to what is now one of the most thickly-populated districts in Pennsylvania, is suggestive of the changes which have taken place since 1793 in the Atlantic States. He says: "Wolves are a serious enemy to the sheep-plan in places where there are the largest ranges. Where a large ridge runs through a country in other respects ever so well peopled they find retreats and breed prodigiously. Unless we can have the *Pyrenean millennium, in which wolves and sheep, it seems, live together in worshipful society*, I know not a speedy remedy. I lay not long ago at the foot of the South Mountain, in York county [Pennsylvania], in a country very thickly settled, at the house of a justice of the peace. Through the night I was kept awake by what I conceived to be a jubilee of dogs assembled to bay at the moon; but I was told, in the morning, that what disturbed me was *only* the common howling of the wolves, which nobody there ever regarded. When I entered the hall of justice, I found the squire giving judgment for the reward on two wolf-whelps a countryman had taken. The judgment-seat was shaken by the intelligence that the she-wolf was coming—*not to give bail*, but to devote herself or rescue her offspring. The animal was punished for this daring contempt committed in the face of the court, and was shot within a hundred yards of the tribunal." Further on, Mr. Peters suggests that it would be well to "send for some Pyrenean wolves to train our mountaineers [*i. e.*, their American brethren] to a little more civility."

Such was the condition of American agriculture at the close of the eighteenth century. It was, as Mr. Peters frankly confessed, not so much "indebted to art as to nature" for such success as was achieved. It was the strongest possible recommendation of free institutions that a method of culture, with the employment of which "European farmers would starve," enabled Americans to "live well and leave their descendants the comforts and conveniencies of life." Still this state of affairs could not last for ever. All the land in the Atlantic States was not equal to Mr. Jefferson's "Jamaica River low grounds." Mr. Peters says: "Many who have large families and want room, or are tired of their old farms, think it better to sell and remove to places where Nature is in her prime, leaving to their successors the toil, *calculation* and expense of renovating lands exhausted by bad tillage." This is still done at the present day in the West, but even

Mr. Peters could see that there was a limit to this method of "putting off the evil day." He says: "One day this will have an end, but that day is far distant. *When it arrives the proprietors of old lands will adopt better systems of agriculture which are now fast advancing.* These will add to the products of their lands and will procure them more wealth, but possibly not more happiness, *in our more ancient settlements. Our old lands are capable of renovation,* having a good staple, as has been proved in numberless instances." He had correctly discerned the signs of the times when he noted the advance of "better systems" of culture. Nine years before he wrote the South Caroliua Agricultural Society was founded (1784). Between the date just given and the end of the century were founded the "Philadelphia Society for the Improvement of Agriculture" (1785), the New York Society (incorporated 1793) and the "Massachusetts Society for Promoting Agriculture" (incorporated 1792), which soon after began the publication of the *Agricultural Repository.* Iu 1796 Mr. Jefferson, in a letter to Jonathau Williams (July 3), mentious an improvement which he had made in the shape of the plough, saying: "It is in the form of a mould-board of least resistance. I had some years ago conceived the principles of it, and I explained them to Mr. Rittenhouse. I have since reduced them to practice, aud have reason to believe the theory fully confirmed." Two years later he composed a treatise upon this subject, with drawings of his invention, and his continued interest in this matter is shown by the following extract from a letter written in 1808 to M. Sylvestre, of the Agricultural Society of the Seine (called forth by the arrival of a plough from England, addressed to Presideut Jefferson, but without letter or explanation): "I presume it is the one sent by the Society of the Seine, that it has been carried into England under their orders of council and permitted to come on from thence. This I shall know within a short time. I shall with great pleasure attend to the construction and transmission to the Society of a plough with my mould-board. This is the only part of that useful instrument to which I have paid any particular attention." Presidents Madison and Monroe were equally interested in agriculture. Of the former Sir John Sinclair says: "Mr. Madison transmitted to me a very able communication on agriculture, fully proving both his knowledge of that art and the ability with which he could explain his sentiments regarding it." "The Columbian Agricultural Society for the Promotion of Rural and Domestic Ecouomy" was, according to Flint, "the first *national* society established with this specific object in view. It was organized at a convention held in Georgetown, D. C., Nov. 28, 1809, and in the following year (May 10, 1810), this society held the first agricultural exhibition in the Uuited States, at Georgetown, offering large premiums for the encouragement of sheep-raising and for progress in other important branches. The first *county* society was the Kennebec Agricul-

tural Society, incorporated in 1801 within the present limits of Maine, which then, as "the District of Maine," formed a part of Massachusetts.

American Agriculture in the Nineteenth Century.—The rapid increase of population in the older States, and the necessity of going to a greater distance to find new land to replace that which had been worn out by bad tillage, made improved methods of culture necessary much earlier than had been anticipated by Mr. Peters. In 1829 it was said that "men of talents, wealth and enterprise have distinguished themselves by their laborious and liberal efforts for the improvement of American husbandry. Merino sheep have been imported and are now common in the United States. The most celebrated breeds of British cattle have also been imported, and there prevails a general disposition among men of intelligence and high standing in the community to promote the prosperity of American agriculture." It was claimed that modern science had already introduced the following improvements: "1. A correct knowledge of the nature and value of manures, mineral, animal and vegetable, and the method of using the last two species while fresh, before the sun, air, and rain or other moisture has robbed them of their most valuable properties. It was formerly the practice to place barn-yard manure in layers and masses for the purpose of rotting, and to turn it over frequently with a plough or spade till the whole had become destitute of almost all its original fertilizing substances and deteriorated in quality almost as much as it was reduced in quantity. 2. The introduction of root husbandry, or the raising of potatoes, turnips, mangel-wurzel, etc., extensively by field-husbandry, for feeding cattle, by which a given quantity of land may be made to produce much more nutritive matter than if it were occupied by grain or grass crops, and the health as well as the thriving of the animals in the winter season is greatly promoted. 3. Laying down lands to grass, either for pasture or mowing, with a greater variety of grasses and with kinds adapted to a greater variety of soils. 4. The substitution of fallow crops (or such crops as require cultivation and stirring of the ground while the plants are growing) in the place of naked fallows, in which the land is allowed to remain without yielding any profitable product, in order to renew its fertility." It is acknowledged, however, that, while "fields may be so foul with weeds as to require a fallow," this operation was not so well carried out on this side of the Atlantic as in Great Britain. "In England, when a farmer is compelled to fallow a field, he lets the weeds grow into blossom and then turns them down. In America, a fallow means a field where the produce is a crop of weeds running to seed instead of a crop of grain." It must be admitted that the doctrines upon which were based the enumerated improvements were by no means generally accepted. They were too "advanced" for the majority of farmers. The patronage of successive Presidents, the efforts of progressive citizens, the emulation excited

by agricultural fairs, were very gradual in their workings upon the general run of American agriculturists. In some places manure was so little valued that it was often sold "at and under" twenty-five cents a ton. An observer could still say, with truth, "The question which the American settler always puts to himself is whether it will be more expedient for him, in point of expense, to remove to a new soil covered with vegetable mould or to remain on his cleared land and to support its fertility by regular manuring and a systematic rotation of crops." There had, however, been a marked improvement in agricultural implements, which were made in this country as cheaply as in England, "the lower price of wood making up for the higher price of labor, especially as the carpenters are very expert." The clumsy wooden plough had been superseded by "ploughs of the improved kind with cast-iron mould-boards," and the ploughmen had become so expert that at the various agricultural fairs a contest of skill in ploughing formed one of the most interesting features of the entertainment.

The establishment of agricultural periodicals gave a decided impetus to the progress of improvement in this branch. The *American Farmer*, established in 1819, the *New England Farmer* (1822), the *Genesee Farmer*, the *American Agriculturist* and a host of other periodicals of a similar nature did yeoman service in the dissemination of information, and to their powerful assistance may be ascribed a great portion of the success achieved in the introduction of better methods of culture and in the invention and manufacture of improved implements. That influence has been, of course, more marked in the older States, where it is most needed. In New England, for instance, where thirty-five bushels of corn to the acre was once an unusually large yield, that amount has become the general average, and "crops of 50 or 60 bushels per acre are not uncommon, while 80 and 100 are sometimes obtained by careful tillage." The importance of improved methods of culture to the wealth and welfare of the nation made it necessary for the government to take some action to meet the growing demand for information. On the 3d of March, 1839, the sum of $1000 was appropriated from the patent fund for the collection of agricultural statistics. These statistics were to be included by the Commissioner of Patents in his annual report, and by 1843 they already occupied more than 200 pages of this document, of which 15,000 copies were printed and distributed. In 1847 they filled more than 400 pages of the report, and in 1849 they began to be published in a separate volume, though still a portion of the *Patent Office Report*. A "Department of Agriculture" was established by act of Congress in 1862 (May 15th), to be under the charge of a "Commissioner of Agriculture," with power to employ, "as Congress may from time to time provide, for such time as their services may be needed, chemists, botanists, entomologists and other persons skilled in the natural sciences pertaining to agriculture." It is the duty of the commissioner

"to acquire and preserve in his department all information concerning agriculture which he can obtain by means of books and correspondence and by practical and scientific experiments (accurate records of which experiments shall be kept in his office), by the collection of statistics and by any other appropriate means within his power; to collect, as he may be able, new and valuable seeds and plants; to test, by cultivation, the value of such as may require such tests; to propagate such as may be worthy of propagation, and to distribute them among agriculturists." Of the first *Report* issued by this department (the one for 1862), 120,000 copies were ordered to be printed. The first appropriation, made in 1839 ($1000), has been somewhat exceeded in more recent times. The appropriation for the expenses of the Department of Agriculture for the fiscal year ending June 30, 1873, was $202,440; and for the fiscal year ending June 30, 1874, it was $257,730, exclusive of $20,000 for printing, making the whole amount $277,730. The second item mentioned was employed, of course, in printing the *Report* for 1873. The first was, doubtless, judiciously expended for the purposes mentioned in the act creating the department; but after a year of untiring efforts on the part of the zealous and faithful head of the department—efforts ably seconded by his assistants—to carry out the design of said act, he is forced to reply to the applicant for the printed *Report* of these labors as follows:

"DEPARTMENT OF AGRICULTURE, WASHINGTON, *July 22d*, 1875.

"*Sir:* Congress at its last session made no provision for the printing or general distribution of the Annual Report of this Department for the year 1874. The Senate ordered 1200 copies for its own use. The volume is therefore in print, but it will require the action of Congress to authorize its distribution by the Department."

Such is the announcement which, printed upon a postal-card, brings to the notice of the thousands who anxiously look for this report an instance of legislative economy and retrenchment whereby a saving (?) was effected of $20,000, the amount of the aggregate increase of the pay of eight Congressmen by the "Salary Grab Act."

A statement of the crops of wheat, rye, barley, oats and maize, or "*corn*" (a term which in Europe comprehends all the cereal grains, except in Scotland, where it is restricted to oats, while in this country it is confined to Indian corn), in various years, will be found elsewhere [see APPENDIX, TABLE V.]. The great crop of the United States is maize. The Statistician of the Department of Agriculture gives some remarkable proofs of this assertion in his *Report* for 1873. He says: "The supplies for man and beast are principally found in corn, hay, wheat, oats, potatoes, barley, rye and buckwheat, named in the order of their aggregate money value. Should grass be included with hay, it would, of course, occupy the first

place. Of these, corn, hay and oats are mainly used in feeding domestic animals; wheat, potatoes, rye, barley and buckwheat are mainly consumed by man. Yet taking only corn and hay, in comparison with these six other food-products, the values for the past five years [1869–1873, inclusive] may be thus expressed in the original estimates of value made by this Department: Corn, $2,620,979,940 [annual average, $524,195,988]; hay, $1,714,213,880 [annual average, $342,842,775]; six food-products [oats, wheat, potatoes, rye, barley and buckwheat], $2,553,007,440 [annual average, $510,601,488]. The value of corn has therefore been $13,594,500 per annum more than the combined values of the six other crops named, and that of the cured grass more than two-thirds as much as the aggregate of the six crops. In response to the inquiry as to the comparative value per acre, it is easy to show the superiority of corn, notwithstanding the reduction in price, by the immense quantity produced. The assumed aggregate of the corn acreage of five years is 184,565,343 acres [average annual acreage, 36,911,068], yielding in corn alone $14.21 per acre; the aggregate for the [hay and the] six crops, 345,166,063 acres [average annual acreage, 69,030,212], yielding $13.99 per acre.* In 1869 the value of the yield per acre was $17.74 for corn against $12.76 for wheat, when the latter crop was the largest ever known." Another and somewhat peculiar test of the value of this crop was recently applied by the Statistician. Eleven counties were taken in Illinois in which nearly three times as much wheat was produced as in eleven other counties, which in turn produced more than three times as much corn as was raised in the eleven counties first taken. The first eleven can therefore be designated as the "wheat counties," while with equal propriety the term "corn counties" can be applied to the second eleven. The assessed valuations of lands (including all improvements) in these respective groups were then consulted, and it was discovered that the average value per acre in the wheat counties was $6.43, while that in the corn counties was $7.89, or 22 per cent. greater. The Statistician says: "It is

* We have given these last figures just as they stand, though, as there is an obvious error, they require a word of explanation. The portions enclosed in brackets are, of course, our own. In the first place, the return for the "six crops" ($2,553,007,440) will certainly not give an average yield of $13.99 per acre. If the return for the hay crop be added, the condition will be improved (the combined value being $4,267,221,320), but the yield per acre is still only $12.71, and not $13.99. The proper aggregate acreage to afford this average yield, with the value of the hay crop and the six crops combined, is 305,010,088. The proper aggregate acreage to yield an average of $13.99 with the value of the six food-products ($2,553,007,440) taken alone is 183,228,194. It is impossible to say, without tracing out each separate item through the whole five years, where the difficulty lies. It is probably one of those typographical errors or editorial oversights which are likely to occur in the best-regulated offices, or even in the work (usually remarkably accurate) of the Statistician of the Department of Agriculture.—Ed. U. S. Gazetteer and Guide.

true that these values are not the cash values, the assessment being lower for purposes of taxation, yet *the true proportion between the two* is not necessarily altered by this fact." Still, "to silence cavil as well as to accumulate evidence," the census returns of the farm lands were appealed to, and it was ascertained that the average value of farm land in the wheat counties was $35.63, while in the corn counties it was $41.70, a difference of 17 per cent. in favor of the corn district. The proportion is nearly the same and the results are much more conclusive, for the State valuation first used included all taxable lands, whether in farms or not, thus introducing into the calculation a disturbing element, while the census return included only farm lands. The Statistician defends his position with great vigor. "An Illinoisan whose views are entitled to respect" suggested to him that perhaps the corn area had the larger proportion of timber, a circumstance which would render the valuation higher. The attorney for the plaintiff in the case of Corn *vs.* Wheat consulted the record, and triumphantly established the fact that the corn counties "have only 391,037 acres in woodland of the 4,546,365 acres in farms, or 8.6 per cent., while the woodland of the wheat counties amounts to 908,756 acres in a total of 3,185,769, or 28.8 per cent. So this advantage enures to the benefit of wheat, and requires additional profits of corn-growing to offset it in the valuation tables." The special point upon which his argument rests is worthy of consideration—viz., that corn, "being fed largely on the farm, is in a measure restorative, while wheat, being carried away from the farm, without any return worth considering [in the shape of fertilizers], is an exhaustive crop. These two diametrically opposite practices must produce opposite results upon the soils, one making the rich richer, the other rendering the poor poorer. As might be expected, the complaint is constant that the wheat average grows less and less; and the fact is that it is only kept from heavy depreciation by a gradual removal of wheat culture westward and freshlandward, as the wheat farmers 'fold their tents' after the manner of the Arab and as 'silently steal away' to green prairies undisturbed by the plough." His final deduction is, "not that wheat culture is unprofitable, and should be everywhere abandoned, but that feeding crops upon the farms, which cannot be done in *exclusive* wheat culture, is the only safe and *ultimately* profitable system to pursue, and a golden rule of agriculture." Sir Morton Peto was much impressed with the quantity and the value of the maize crop of this country. In his *Resources and Prospects of America* he says: "I confess to some surprise that this product does not enter more largely into consumption in Great Britain and Ireland. Much of the comparatively small quantity imported is worked up by parties who sell it as farinaceous food for children, for pastry-making, etc. In this form Indian corn is a comparatively costly article. It is in the cheaper forms in which it is used throughout America that it seems to me it might be

much more generally introduced into consumption here." As he is writing in Great Britain, he gives some information which is more specific: "There are various ways of dressing Indian corn. Boiled, in its green state, it is a most delicious vegetable. There is no reason why it should not be introduced into this country. It is cheap enough in America, and it bears the voyage here. I have it frequently at my own table, where it is much approved." He elsewhere expresses great regret at the use of corn as fuel in Iowa, where, the corn crop of a certain year being very large, so that ears of corn sold for ten cents per bushel, "a cord of corn," containing seventy bushels, cost only seven dollars, yet furnished more heat than a cord of wood, which cost, after sawing, nine dollars and fifty cents. The leading States in the production of maize in 1873 (total crop, 932,274,000 bushels) were Illinois (15.40 per cent., or 143,634,000 bushels), Iowa (11.28 per cent., or 105,200,000 bushels) and Ohio (9.48 per cent., or 88,422,000 bushels), making for these three States 36.36 per cent., or more than one-third of the entire crop. We give some figures compiled from the *Reports on Commerce and Navigation* for various years, to show the increase in the exports of maize. In the year ending June 30,* 1866, the total exports of maize were 13,516,615 bushels; to Great Britain, 9,889,232 bushels (England, 7,292,411; Scotland, 708,813; Ireland, 1,888,008). In 1866–7, total exports of maize, 14,889,823 bushels; to Great Britain, 12,197,064 bushels (England, 8,161,346; Scotland, 1,014,-064; Ireland, 3,021,654). In 1867–8, total exports of maize, 11,147,490 bushels; to Great Britain, 8,707,998 bushels (England, 5,391,053; Scotland, 1,243,639; Ireland, 2,073,296). Passing over a few years, we come to 1872–3, for which the figures are as follows: Total exports of maize, 38,541,930 bushels; to Great Britain, 29,334,759 bushels (England, 11,666,867; Scotland, 1,457,501; Ireland, 16,210,391). In 1873–4, total exports of maize, 34,434,606 bushels; to Great Britain, 26,299,320 bushels (England, 10,299,483; Scotland, 2,335,026; Ireland, 13,764,813). Though there is a decrease in this last year, it is not proportionately so great as the decrease in the crop of 1873, which was the one out of which the exports of the fiscal year 1873–4 came. The reader will see, by consulting the table [see TABLE V. in APPENDIX], that the year 1872 was an exceptionally good year for corn, the crop almost equalling the maximum crop (that of 1870). The next crop in value among the breadstuffs is

* As the fiscal year ends with June 30, in mentioning the exports or imports of any year since 1843 it is generally understood that the *fiscal year* ending on June 30 of that year is meant. The *Report on Commerce and Navigation for* 1874, for instance, gives statistics up to June 30, 1874, and the exports for 1874 are generally understood to mean those of the year which began July 1, 1873. To avoid all ambiguity, however, we shall term such a year 1873–4, as it contains just one half of each year indicated by this form.

wheat. The rate of increase in the crop may be gathered from the table to which we have just referred. The exports for several years of wheat and flour are as follows: In 1865–6, total exports of wheat, 5,579,103 bushels (value, $7,842,749); wheat flour, 2,183,050 barrels (value, $18,396,686); total value, $26,239,435; to Great Britain, wheat, 1,970,716 bushels (England, 1,700,902; Scotland, 157,758; Ireland, 112,056); wheat flour, 136,020 barrels (England, 120,347; Scotland, 10,495; Ireland, 5178). In 1866–7, total exports of wheat, 6,146,411 bushels (value, $7,822,555); wheat flour, 1,300,306 barrels (value, $12,803,775); total value, $20,626,330; to Great Britain, wheat, 4,685,615 bushels (England, 4,652,389; Scotland, 33,226); wheat flour, 116,299 barrels (England, 109,037; Scotland, 6873; Ireland, 389). In 1867–8, total exports of wheat, 15,940,899 bushels (value, $30,247,632); wheat flour, 2,076,423 barrels (value, $20,887,798); total value, $51,135,130; to Great Britain, wheat, 12,368,446 bushels (England, 10,747,798; Scotland, 894,110; Ireland, 726,538); wheat flour, 484,706 barrels (England, 416,483; Scotland, 55,711; Ireland, 12,512). Passing over a few years, we have for 1872–3 the following figures, which show a marked increase: Total exports of wheat, 39,204,285 bushels (value, $51,452,254); wheat flour, 2,562,086 barrels (value, $19,381,664); total value, $69,833,918; to Great Britain, wheat, 30,790,876 bushels (England, 25,872,665; Scotland, 2,133,341; Ireland, 3,784,870); wheat flour, 531,801 barrels (England, 390,227; Scotland, 131,321; Ireland, 10,253). The figures for 1873–4 are still more encouraging, being as follows: Total exports of wheat, 71,039,928 bushels (value, $101,421,459); wheat flour, 4,094,094 barrels (value, $29,258,094); total value, $130,679,153; to Great Britain, wheat, 50,833,278 bushels (England, 30,319,711; Scotland, 3,903,630; Ireland, 17,609,937); wheat flour, 1,703,984 barrels (England, 1,307,286; Scotland, 353,495; Ireland, 43,203). An examination of these figures will show that Ireland, which at first took but a small proportion of the Indian corn, came to the front in 1872–3, taking nearly half of the whole amount exported, more than half of the portion which went to Great Britain, and a larger quantity than the whole amount exported in any fiscal year between June 30, 1865, and June 30, 1868, and we might add, more than double the whole quantity of maize exported from the United States during the year 1868–9, when the amount was unusually small (7,047,197 bushels). In wheat also Ireland makes a remarkable leap, taking in 1865–6 but little more than five per cent. of the quantity going to Great Britain; in 1866–7 none at all, according to the official report, while in 1872–3 more than 11 per cent. of the exports of wheat to Great Britain went to Ireland; and in 1873–4 she took more than 34 per cent. of the large amount which went to Great Britain, more than three times the total export of wheat from the United States in 1865–6, more than 2½ times the same export in 1866–7, nearly

two million bushels more than the same total in 1867–8, and more than the same total in 1868–9, when it had risen to 17,557,836 bushels. The remaining crops of breadstuffs are sufficiently set forth in the table; that of oats is large, but is almost entirely consumed at home, the amount exported being insignificant (481,871 bushels in 1868–9, nearly balanced by an import of 326,359 bushels; 714,072 bushels in 1872–3, with an import of 225,555 bushels; 812,873 bushels in 1873–4, with an import of 191,802 bushels). The demand for barley for malting purposes has greatly increased the amount raised, as is seen by the table. The increase has not yet come up to the demand, judging by the fact that the imports are heavy while the exports are nominal, the following being some of the figures: 1868–9, imports of barley, 5,069,880 bushels; exports, 59,077 bushels; 1872–3, imports, 4,244,751 bushels; exports, 482,410 bushels; 1873–4, imports, 4,891,189 bushels; exports, 320,399 bushels. The crop of rye shows in later years a decided falling off from the figures of 1867, 1868 and 1869. The exports for 1868–9 were 49,501 bushels; imports, 199,543 bushels; in 1872–3, exports 562,021 bushels; imports, 214,102 bushels; in 1873–4, exports, 1,564,484 bushels; imports, 164,153 bushels. It appears, from this decided increase in the exportation of a crop which had fallen off about one-third in the course of four years, that the demand for "schwarzbrod" has not kept pace with the increase in population. There is another crop, not a breadstuff, which stands in the front rank among the agricultural productions of the United States; we allude to cotton, statistics of which will be found elsewhere [see TABLE VI. in APPENDIX]. It is, as Professor McCay says, "of prime necessity, and in large demand abroad, because it furnishes the cheapest material for clothing and for other purposes of civilized life, and it is produced here under such favorable circumstances that we can supply this demand at a fair profit to ourselves." Though the "favorable circumstances" specially intended by Professor McCay no longer exist (he wrote in 1850), there are advantages enough of soil and climate to make the southern portion of the United States the greatest cotton-producing country in the world, when *quality* is considered as well as quantity. The attempt by Great Britain to substitute India to some extent for America as her cotton-field served only to show the vast superiority of the product of this country. Although it is not a native of the United States, it thrives here better than in its fatherland. Cotton-seed brought here from India, where it is a native, will produce a better cotton than in that country, and the product will be continually tending to a longer and better staple. New Orleans cotton-seed planted in India will produce, *the first year*, cotton nearly equal to its original, but every year of reproduction from the same seed will show more and more deterioration, until the yield is no better than the native India cotton. The best quality of American cotton is the sea-island cotton, the small crop of which is

mentioned in a note appended to the table. This is so precious that it is reserved for the finest yarns, for the most delicate fabrics and for a mixture with silk which is exceedingly difficult to detect. The great bulk of the crop of the United States consists of "upland," or "short staple." The value of the cotton (exclusive of sea-island cotton) exported from the United States during the fiscal year ending June 30, 1874, was $209,109,106. This would make the whole crop worth more than $300,000,000. The average production per acre in 1872 was about half a bale, or 221½ pounds, per acre, worth about $44.30. There is a constant tendency toward over-production, which is thus rebuked by the Statistician in the *Report on Agriculture* for 1873: "Every intelligent publicist knows that a fixed quantity—say $300,000,000—may be derived from cotton. If the average quantity is increased, the price diminishes, and *vice versâ*. If fluctuations are frequent, the speculator or manufacturer, and not the producer, derives an advantage. If you choose to produce five million bales, you obtain 10 cents per pound, and lose money; if you grow but three, you get 20 cents, and obtain a profit. Now, it is better for the world, and, in a series of years, better for the grower, to produce regularly enough to supply the current wants of the trade at a medium and remunerative price, or as near a regular supply as possible, for the vicissitudes of the season will inevitably cause injurious fluctuations despite the highest efforts of human wisdom and foresight. As the uses of cotton increase and markets are extended throughout the world, its manufacture will be enlarged and its culture should obtain corresponding enlargement. To overstep the current demand and glut the market may be pleasing to the speculator and to the manufacturer, so far as he combines speculation with weaving, but it is death to the grower." It is stated in the *Annual Cyclopædia* for 1874 that the cost of manufacturing varies from 4½ mills to 6½ mills per number per pound* in different mills, according to their organization, condition and management. Few factories reach the rate of 4½ mills, which is extremely low, while 6½ mills is an extravagantly high cost. The mean or average is estimated to be 5¼ or 5½ mills per number. Including the cost of cotton and 2 per cent. for selling, the cost of printing-cloth is 5.02 cents per yard; light sheeting, 7.41; standard sheeting, 8.94. The number of spindles in use in the United States on the 1st of July, 1874, was 9,415,383, against 7,132,-

* Cotton yarn is numbered according to size, the number increasing as the yarn becomes finer. The finer the yarn produced, the greater the quantity in a pound, and, it might be added, the greater the skill and care required in its production. The average size or number of yarn produced in the United States in 1869 was 27½—28 in the North and $12\frac{7}{8}$ in the South. Applying the rule, and taking number 14 for an example, the cost of manufacturing a pound of this number would be in mills from $14 \times 4\frac{1}{2}$ to $14 \times 6\frac{1}{2}$—*i. e.*, from 6.3 cents to 9.1 cents. The statistics which follow are here given because they reached us too late for incorporation with the article on AMERICAN MANUFACTURES.—ED. U. S. GAZETTEER AND GUIDE.

415 in 1870, though the number of the mills had decreased from 956 to 847; number of looms, 186,975 (in 1870, 157,310). This shows very rapid progress since 1870, being an increase in the number of spindles of 32.05 per cent. over the census figures of 1870. The kinds and quantities of cotton goods produced during the year ending July 1, 1874, were as follows: Threads, yarns and twines, 149,000,000 pounds; sheetings, shirtings and similar plain goods, 707,000,000 yards; twilled and fancy goods, osnaburgs, jeans, etc., 306,000,000 yards; printed cloths, 588,000,000 yards; ginghams, 33,000,000 yards; ducks, 30,000 yards; and besides these there was a production of 6,000,000 bags, more than double the quantity (2,767,060) reported by the census of 1870. Statistics for previous periods will be found elsewhere [see AMERICAN MANUFACTURES]. Another very important crop, one which, in one shape or another, is dear to almost every American heart, is the tobacco crop. There is great variation in the size of this crop. In 1840 it was 219,163,319 pounds; in 1850, 199,752,655 pounds; in 1860, 434,209,461 pounds; in 1870, 262,735,341 pounds; in 1873 (according to the *Report on Agriculture*), 372,810,000 pounds; in 1874 (as reported by the *Annual Cyclopœdia*), 200,000,000 pounds. The exports of tobacco for various years have been as follows: 1865, 7,294,165 pounds (value, $3,439,979); 1866, leaf, 190,826,248 pounds (value, $29,456,145); manufactured, 6,515,709 pounds (value, $1,794,689); 1867, leaf, 184,803,-065 pounds (value, $19,620,159); manufactured, 9,601,142 pounds (value, $2,795,008); 1867, leaf, 206,020,504 pounds (value, $22,898,823); manufactured, 10,470,024 pounds (value, $3,100,084); 1869, leaf, 181,527,630 pounds (value, $20,552,943); manufactured (value only being given), $2,759,005; 1873, leaf, 213,995,176 pounds (value, $22,689,135); manufactured (value), $2,627,585; 1874, leaf, 318,097,804 pounds (value, $30,399,181); manufactured (value), $2,537,782. The leading States, according to the returns of 1873, were Kentucky (152,000,000 pounds), Virginia (50,000,000 pounds) and Ohio (32,500,000 pounds), making for these three States 234,500,000 pounds, being more than two-thirds of the crop of that year, and a larger quantity than the whole crop of 1874. The fluctuations in the size of this crop arise from the great care required in its culture, the cultivator being in danger of losing his crop for what would, with other products, be but a small negligence. The seed must be mixed with plaster or sifted ashes, in the proportion of a gill of the former to a quart of the latter. The greatest care is required to prevent the growth of weeds, and every week, after the plants are up, it is recommended to scatter over them a compost of ashes, plaster, soot, salt and pulverized sulphur, to invigorate them and to protect them from the ravages of the fly. They must be transplanted, gone over with the "tobacco cultivator," decapitated (the tops are cut down to the leaves that are six inches long) as soon as the blossoms are fairly formed (with the exception of those that

are reserved for seed), and it is necessary to go over the whole field every morning and evening, examining each plant as far as is practicable, in order to kill such worms as are found, or to break their eggs, which have been judiciously deposited where the offspring will have a sufficiency of palatable food, if the benevolent design of the parent is not frustrated. The preparation of the crop for the market is also an operation, or rather a series of operations, requiring great care and skill, a lack of which during several of the stages may be productive of very injurious effects. There are two other crops, food crops, which we omitted to mention in their proper places, but which should not be passed entirely over; we allude to potatoes and rice. The potato crop amounted, in 1850, to 65,797,896 bushels; in 1860, to 111,148,867 bushels of "Irish," and 42,095,026 of sweet potatoes, and in 1870, to 143,337,473 bushels of Irish and 21,709,824 of sweet potatoes. For the years 1873 and '74 the crop of Irish potatoes was about 106,000,000 bushels, while that of sweet potatoes was 48,000,000 bushels in 1873 and 46,000,000 in 1874. The leading States in the production of potatoes in 1873 were New York (24,925,000 bushels), Pennsylvania (10,602,000), Michigan (6,910,000) and Ohio (6,045,000), making the total yield for these four States 48,482,000 bushels, or nearly half of the total crop. The crop of rice was, in 1840, 80,841,422 pounds (South Carolina, 60,590,861 pounds); in 1850, 215,313,497 pounds (South Carolina, 159,930,613 pounds); in 1860, 187,167,032 pounds (South Carolina, 119,100,528 pounds); and in 1870, 73,635,021 pounds (South Carolina, 32,304,825 pounds. It will be noticed that in the first two years cited South Carolina produced more than three-fourths, and in the third year mentioned more than two-thirds, of the total yield. The culture of the vine has made great progress, especially in California, where the grape crop is estimated to be worth more than $10,000,000 per annum, and the capabilities of three counties alone (Los Angeles, San Bernardino and San Diego) have been ascertained to be equal to the yearly production of 100,000,000 gallons of wine, if pressed to their fullest extent. The total product of wine in the whole country, in 1850, was 221,249 gallons (California, 58,055); in 1860, 1,627,192 gallons (California, 246,518); in 1870, 3,092,330 gallons (California, 1,814,656).

Decided progress has been recently made in the breeding of live-stock, especially during the past twenty years. In 1840 the number of horses and mules was 4,335,669. In 1850 the horses numbered 4,336,719—a thousand more than the combined total just given—and the "mules and asses" 559,331. In 1860 the figures were: Horses, 6,249,174 (increase in ten years, 67.02 per cent.); mules and asses, 1,151,148 (increase, 105.81 per cent.); in 1870, horses, 7,145,370 (increase in ten years, 11.11 per cent.); mules and asses, 1,125,415 (decrease, 2.24 per cent.); in 1874, horses, 9,333,800 (increase in three years, 30.63 per cent.); mules, 1,339,350 (in-

crease in three years, 19.01 per cent.). The value of the horses reported in 1873 was $666,927,406 (average price, $71.45), and of the mules, $119,501,859 (average price, $89.22). Previous to 1860 the horses in cities and towns were not included in the estimates. The present number of horses is about one to every five inhabitants. The horses of the United States have advanced not only in number, but in quality. The "Morgan" and "Black Hawk" families have preserved, and in many cases improved upon, the good qualities of their sires, that of the former (Justin Morgan) having been foaled in West Springfield, Mass., in 1793, and the progenitor of the latter in Vermont in 1833, to which State, indeed, the former had been brought in 1795. The extraordinary reproductive faculty of "Justin Morgan" was transmitted to his sons, and every succeeding foal, without regard to blood intermixture even of strong types, was distinctively a Morgan. "Nor," says Murray, in *The Perfect Horse*, "did this power die out in one or two generations, but continued on like a stream having a constant source, and might have been prolonged doubtless unto this day." He complains, however, that "the State which had been enriched and made famous by this animal and his descendants committed financial suicide by allowing the family to be scattered and the family type itself to be brought away from it. Not alone Vermont, but the entire country were losers when the Morgan family ceased to have 'a local habitation,' although it could never cease to have 'a name.'" Among the thoroughbreds are not a few of the descendants of the famous Eclipse, of whom honest John Lawrence said that "he puffed and blowed like an otter and galloped as wide as a barn-door." Professor Low, in his *Domesticated Animals of Great Britain*, says: "The inhabitants of the United States have a very mixed race of horses, some of which are excellent. It is the character of this people to carry ardor and boldness into every favored pursuit, and the improvement of their horses at this time [he wrote in 1858] occupies much of their attention. The nature of their country leads them to cultivate useful horses for the road and for their innumerable public and private carriages. They prefer the trot to the paces more admired in the Old Continent; and having directed attention to the conformation which consists with this character, the fastest trotting-horses in the world are to be found in the United States." The improvement in the speed of trotting-horses during the past thirty years has been remarkable. "Two-forty" was once the proverbial expression for a fast gait, but at the present day the attainment of this rate of speed would not entitle a horse to a very high rank among racers, and the performances of Flora Temple, of Dexter and, more recently, of Goldsmith Maid, have sent down the minimum time to a point scarcely dreamed of a quarter of a century ago. At a recent meeting of the Cleveland Club only two of the forty-four heats were slower than 2.20, and one heat was trotted in 2.18. American Girl has

trotted a mile in 2.17¾, and Lulu in 2.15. Goldsmith Maid's record is 2.14, and a large number of horses have beaten 2.20. The Conestoga horse, as a beast of burden, is a very highly-prized animal, combining great strength with lightness and agility. It has been well remarked that "although 'Young America' is said now to require a swifter horse, it is believed that there is no surer, safer or more lasting one." Mules and asses are largely bred in the Southern and Pacific States as substitutes for horses. It is said that "the mule is hardier than the horse, subject to fewer diseases, more patient, better adapted for travelling over rugged and trackless surfaces, less fastidious as to food, requires less grooming and attention and usually lives and works to double the age of the horse." There are so few in New England, the number reported from that section in the census of 1870 being only 358 (only 1 in Rhode Island), that they do not enter into the report from those States for 1873. Milch cows were first returned separately in the census of 1850, when the number was 6,385,094; working-oxen, 1,700,744; other cattle (beeves, etc.), 9,693,069; in 1860, milch cows, 8,585,735; working-oxen, 2,254,911; other cattle, 14,779,373; in 1870, milch cows, 8,935,332; working-oxen, 1,319,201; other cattle, 13,566,005; in 1874, milch cows, 10,705,300; average price, $27.99; total value, $299,609,309; oxen and other cattle, 16,218,100; average price, $19.15; total value, $310,643,803. The decrease in the number of working-oxen is attributable to the fact that as districts become more densely peopled, and consequently more civilized and more wealthy, horses largely supersede oxen in agricultural and other operations. The whole increase between 1850 and 1860 was only 32 per cent. in the whole country, and in the Eastern and Middle States there was a decrease. The use of improved agricultural implements diminishes the force required from working-oxen, and consequently diminishes also their use as such implements come to be introduced. During the epizooty which prevailed in 1872, however, oxen were at a premium, and many a man who had long been absent from the paternal farm was glad to recall the once familiar "whoa, haw" and "whoa, gee" of his boyhood, and to drop, in some cases, the pen for the ox-goad when the lack of facilities for transportation threatened a stagnation of business. The leading States, in 1873, in the number of horses were Illinois (1,059,800), Ohio (738,600), Texas (699,100), New York (659,300), Indiana (649,500), Iowa (647,000) and Pennsylvania (557,000), making for these seven States 5,007,700 (53.65 per cent.), or more than one-half of the total number. The leading States in the number of milch cows were New York (1,410,600), Pennsylvania (812,600), Ohio (778,500), Illinois (725,100), Iowa (569,500) and Texas (526,500), making for these six States 4,822,800 (45.50 per cent.), or nearly one-half of the total number. The increase in the numbers of sheep and of swine during the past thirty years has been very slight, compared with that of other live-

stock, the last census showing a decrease in the number of swine from the figures of 1860. The number of sheep in the United States in 1840 was 19,311,374; leading States, New York (5,118,777), Ohio (2,028,401), Pennsylvania (1,767,620), Vermont (1,681,819), Virginia (1,293,772), Kentucky (1,008,240), making for these six States 11,890,391 (61.57 per cent.), or more than three-fifths of the whole number. The number of swine in the same year was 26,301,293; leading States, Tennessee (2,926,607), Kentucky (2,310,533), Ohio (2,099,746), Vermont (1,992,155), New York (1,900,065) and Indiana (1,623,608), making for these seven States 12,852,514 (48.81 per cent.), or nearly one-half of the whole number. The number of swine in the United States, in 1850, was 30,354,213 (increase in ten years, 15.41 per cent.); leading States, Tennessee (3,104,800), Kentucky (2,891,163), Indiana (2,263,776), Georgia (2,168,617), Ohio (1,964,770), Illinois (1,915,907) and Alabama (1,904,540), making for these seven States 16,213,573 (53.04 per cent.), or more than one-half of the total number. Number of sheep, 21,723,220 (increase in ten years, 13.00 per cent.); leading States, Ohio (3,942,929), New York (3,453,241), Pennsylvania (1,822,357), Virginia (1,310,004), Indiana (1,122,493) and Kentucky (1,102,091), making for these six States 12,753,115 (58.71 per cent.), or nearly three-fifths of the total number. Number of sheep in 1860, 22,471,275 (increase in ten years, 8.05 per cent.); leading States, Ohio (3,546,767), New York (2,617,855), Pennsylvania (1,631,540), Michigan (1,271,743), California (1,088,002) and Virginia (1,043,269), making for these six States 11,199,176 (49.80 per cent.), or nearly one-half of the total number. Number of swine in 1860, 33,512,867 (increase in ten years, 10.43 per cent.); leading States, Indiana (3,099,110), Illinois (2,502,308), Missouri (2,354,425), Tennessee (2,347,321), Kentucky (2,330,595), Ohio (2,251,653) and Georgia (2,036,116), making for these seven States 16,921,528 (50.49 per cent.), or more than one-half of the whole number. Number of sheep in 1870, 28,477,951 (increase in ten years, 26.72 per cent.); leading States, Ohio (4,928,635), California (2,768,187), New York (2,181,578), Michigan (1,985,906), Pennsylvania (1,794,301), Indiana (1,612,680) and Illinois (1,568,286), making for these seven States 16,839,573 (59.10 per cent.), or nearly three-fifths of the whole number. Number of swine in 1870, 25,134,569 (decrease in ten years, 25 per cent.); leading States, Illinois (2,703,343), Missouri (2,306,430), Indiana (1,872,230), Kentucky (1,838,227), Tennessee (1,828,690) and Ohio (1,728,968), making for these six States 12,277,888 (48.85 per cent.), or nearly one-half of the whole number. Number of sheep in 1874, 33,938,200 (increase in four years 19.17 per cent.); leading States, California (4,683,200), Ohio (4,639,000), Michigan (3,486,300), New York (2,037,200), Iowa (1,732,600), Indiana (1,722,500) and Pennsylvania (1,674,000), making for these seven States 19,874,800 (58.89 per cent.), or nearly three-fifths of the whole number.

Number of swine in 1874, 30,860,900 (increase in four years 23.18 per cent.); leading States, Iowa (3,693,700), Illinois (3,409,700), Missouri (2,603,300), Indiana (2,496,700), Ohio (2,017,400) and Kentucky (2,008,000), making for these six States 16,228,800 (52.65 per cent.), or more than one-half of the whole number. The value of all live-stock in the United States in 1850 was $544,180,516; in 1860, $1,089,329,915 (increase in ten years, 100.17 per cent.); in 1870, $1,525,276,457 (increase in ten years, 40.02 per cent.). The figures for 1875 for the leading domestic animals are as follows: Number of horses, 9,520,476; average price, $71.05; total value, $675,429,820; mules, 1,392,324; average price, $88.10; total value, $122,716,604; milch cows, 10,919,406; average price, $27.01; total value, $294,933,159; other cattle, 16,220,000; average price, $19.00; total value, $308,180,000; sheep, 33,598,818; average price, $2.65; total value, $89,636,868; swine, 28,083,419; average price, $4.30; total value, $120,758,702. The wool produced in 1850 amounted to 52,516,959 pounds; in 1860, 60,264,913 pounds; in 1870, 100,102,387 pounds (increase in ten years, 66 per cent.); in 1873, 146,000,000 pounds (increase in three years, 45.89 per cent.). The wool manufacture requires a constantly increasing amount of raw material. The imports for eleven years, from 1861 to 1871, inclusive, amounted to 572,647,377 pounds of wool (exclusive of shoddy), an average of 52,058,843 pounds, costing (in gold at the port of shipment) $89,375,908, or $8,125,082 per annum. The imports of 1871–2 were 122,256,499 pounds, costing $26,214,195; of 1872–3, 85,496,049 pounds, valued at $20,433,938; of 1873–4, 42,939,541 pounds, worth $8,250,306.

The census returns of agriculture for the years 1850, 1860 and 1870 show constant improvement in fullness and accuracy. A portion of them has already been given, and from the remainder we shall now select the most interesting, giving as many as our limited space will allow. The average size of farms in the United States, in 1850, was 203 acres, California giving the enormous average of 4466 acres, and Texas that of 942 acres, while the smallest average (51 acres) was found in Utah. The average size of farms in 1860 was 203 acres, Nevada (617), Texas (591), Louisiana (536) and South Carolina (488) having then an average greater than that of California, which had fallen to 466 acres. Average for 1870, 153 acres, California (482), Georgia (338), Oregon (315) and Texas (301) giving the highest figures. In nearly all of the States there was a steady decrease in the average size of farms, though in Alabama (289, 346, 222), Arkansas (146, 245, 154), Florida (371, 444, 232), Louisiana (372, 536, 247), Maine (97, 103, 98), Mississippi (309, 370, 193), Missouri (179, 215, 146), New Hampshire (116, 123, 122) and New Mexico (77, 278, 186) there was an increase in the average between 1850 and 1860 and a decrease between 1860 and 1870, the figures in parentheses being their aver-

ages in the successive census years. California (4466, 466, 482) reversed this order, its average showing a decrease in 1860 and a slight increase in 1870. The total acreage of farms in 1850 was, improved, 113,032,614; unimproved, 180,528,000; total, 293,560,614. "By 'improved land' is meant cleared land used for grazing, grass or tillage, or lying fallow." Irreclaimable marshes and considerable bodies of water were excluded in giving the area of a farm improved and unimproved. Total acreage in farms in 1860, 407,212,538; improved, 163,110,720; unimproved, 244,101,818. Total acreage in 1870, 407,785,041; improved, 188,921,099; unimproved, 218,813,942. The percentage of improved land in farms as compared with total land in farms was, in 1850, 39.5 per cent.; in 1860, 40.1 per cent.; in 1870, 46.3 per cent. The highest percentage of improved land in 1850 was in Connecticut (74.2 per cent.); the lowest, in California, only eight-tenths of 1 per cent. (32,354 acres) being improved, while 99.2 per cent. (3,861,531 acres) was unimproved. In 1860 the highest percentage of improved land in any State was still in Connecticut, while the lowest (10.5) was in Texas, which was very nearly matched by New Mexico (10.6 per cent.). In 1870 several States had made great advances in improving land, and stood very nearly together, the leading ones being Illinois (74.7 per cent.), New York (70.4) and Connecticut (69.6 per cent.). The States possessing the largest improved acreage in farms in 1850 were New York (12,408,964), Virginia (10,360,135), Ohio (9,851,493), Pennsylvania (8,628,619) and Georgia (6,378,479), making for these five States 47,627,690 acres (42.14 per cent.), or more than two-fifths of the total improved acreage. The leading States in this respect, in 1860, were New York (14,358,403), Illinois (13,096,374), Ohio (12,625,394), Virginia (11,437,821), Pennsylvania (10,463,296) and Georgia (8,062,758), making for these six States 70,044,046 acres (42.96 per cent.), or more than two-fifths of the total improved acreage. The leading States in 1870 were Illinois (19,329,952), New York (15,627,206), Ohio (14,469,133), Pennsylvania (11,515,965), Indiana (10,104,279), Iowa (9,396,467), Missouri (9,130,615), making for these seven States 89,573,617 acres (47.04 per cent.), or nearly one-half of the total improved acreage. The value of farms in the whole country in 1850 was $3,271,575,426; leading States, New York ($554,546,642), Pennsylvania ($407,876,099), Ohio ($358,758,603), Virginia ($216,401,543), Kentucky ($155,021,262), Indiana ($136,385,173) and New Jersey ($120,237,511), making for these seven States $1,949,226,833 (59.58 per cent.), or very nearly three-fifths of the total value. Value of farming implements and machinery in 1850, $151,587,638; leading States, New York ($22,084,926), Pennsylvania ($14,722,541), Ohio ($12,750,585), Louisiana ($11,576,938), Virginia ($7,021,772), Indiana ($6,704,444) and Illinois ($6,405,561), making for these seven States $81,266,767 (53.61 per cent.), or more than one-half of the total value.

Value of farms in 1860, $6,645,045,007 (increase in ten years, 103.11 per cent.); leading States, New York ($803,343,593), Ohio ($678,132,991), Pennsylvania ($662,050,707), Illinois ($408,944,033), Virginia ($371,761,661), Indiana ($356,712,175) and Kentucky ($291,496,955, making for these seven States $3,572,442,115 (53.76 per cent.), or more than one-half of the total value. Value of farming implements and machinery in 1860, $246,118,141 (increase in ten years, 62.36 per cent.); leading States, New York ($29,166,695), Pennsylvania ($22,442,842), Louisiana ($18,648,225), Ohio ($17,538,832), Illinois ($17,235,472), Indiana ($10,457,897) and Virginia ($9,392,296), making for these seven States $124,882,259 (50.74 per cent.), or more than one-half of the total value. Value of farms in 1870, $9,262,803,861 (increase in ten years, 39.39 per cent.); leading States, New York ($1,272,857,766), Ohio ($1,054,465,226), Pennsylvania ($1,043,481,582), Illinois ($920,506,346), Indiana ($634,804,189), Michigan ($398,240,578) and Missouri ($392,908,047), making for these seven States $5,737,263,734 (61.93 per cent.), or more than three-fifths of the total value. Value of farming implements and machiuery in 1870, $336,878,429 (increase in ten years, 36.87 per cent.); leading States, New York ($45,997,712), Pennsylvania ($35,658,196), Illiuois ($34,576,587), Ohio ($25,692,787), Iowa ($20,509,582), Indiana ($17,676,591) and Missouri ($15,596,426), making for these seven States $195,707,881 (58.09 per cent.), or nearly three-fifths of the total value. It is noteworthy, as an instance of the progress of this country during twenty years, that the aggregate value of the farms of New York, Pennsylvania and Ohio iu 1870 ($3,370,804,574) was greater than that of all the farms in the country in 1850. In the latter year the value of orchard products was $7,723,186; market-garden products, $5,280,030; home manufactures, $27,493,644; animals slaughtered, $111,703,142. Value of orchard products in 1860, $19,991,885 (increase in ten years, 159 per cent.); market-garden products, $16,159,498 (increase in ten years, 203 per cent.); home manufactures, $24,546,876 (decrease, 11.12 per cent.); animals slaughtered or sold for slaughter, $213,618,692 (increase 92 per cent.). Wages paid in 1870, including the value of board, $310,286,285; value of orchard products, $47,335,189 (increase in ten years, 137 per cent.); market-garden products, $20,719,229 (increase, 28.22 per cent.); forest products, $36,808,277; home manufactures, $24,546,876 (decrease 4.79 per cent.); animals slaughtered or sold for slaughter, $398,956,376 (increase in ten years, 86.76 per cent.); leading States, Illinois ($56,718,944), Ohio ($40,498,375), Indiana ($30,246,962), Pennsylvania ($28,412,903), New York ($28,225,720), Iowa ($25,781,223), Kentucky ($24,121,861), making for these seven States $234,005,988 (58.68 per cent.), or nearly three-fifths of the total value. Value of all farm productions in 1870, including bettermeuts and additions to stock, $2,447,538,658; leading States, New York ($253,526,153), Illi-

nois ($210,860,585), Ohio ($198,256,907), Pennsylvania ($183,946,027), Indiana ($122,914,302), Iowa ($114,386,441) and Missouri ($103,035,759), making for these seven States $1,186,925,174 (48.49 per cent.), or nearly one-half of the total value. The number of persons engaged in agriculture in 1860 was 3,305,335; in 1870, 5,922,471 (males, 5,525,503; females, 396,968); increase in ten years, 79.18 per cent. Leading States in the number of persons engaged in agriculture, Ohio (397,024), Illinois (376,-441), New York (374,323), Georgia (336,145), Alabama (291,628), North Carolina (269,238), Tennessee (267,020) and Missouri (263,918), making for these eight States 2,575,737 (43.49 per cent.), or more than two-fifths of the total number. The comparative healthiness of farming is shown by the fact that when the census of 1870 was taken the proportion of farmers who were sixty years of age and over was 7.82 per cent., or nearly one-twelfth of the total number, while of those who were engaged in "personal and professional" occupations the proportion of this age was 4.99 per cent.; of those engaged in "manufacturing, mechanical and mining industries" it was 3.23 per cent., and of those engaged in "trade and transportation" it was only 2.33 per cent., or little more than one-fiftieth part of the total number.

Statistics of the manufacture of agricultural implements have been elsewhere given. [See AMERICAN MANUFACTURES.] Labor- and time-saving machines are now regarded as indispensable by all who engage in agriculture on a large scale. The reaper and the mower are the types of the present, the sickle and the flail are types of the past. The horse rake, the improved horse hoes, the broadcast seed-sower, the improved subsoil and trenching ploughs, straw and root cutters, cultivators, threshing and winnowing machines, and many others of equal importance have revolutionized the operations of agriculture. It has been said that the improvement in the implements named, made within the last half century, "has enabled the farmers of the United States to accomplish double the amount of labor with the same number of teams and men." This estimate seems to be low, for according to the same authority, "they can plough deeper and more thoroughly with less power, hoe and spade with less expenditure of manual labor, thresh hundreds of bushels of grain with the machine where only tens could have been threshed with the flail, rake ten acres with the horse rake more easily than one by hand, and reap from twelve to fifteen acres of grain in less time and with greater ease with the reaper than one with the sickle or cradle, to say nothing of the infinite variety of other operations in which both time and labor are saved by the use of machines instead of the slow drudgery of hand labor." The increase in the number and value of improved implements has another effect which does not appear at first sight, but which can be ascertained by a careful examination of results. The constant flood of emigration to the West

suggests to the dweller on the Atlantic coast the question, What is the effect of this western movement of population on the value of property in the States first settled? Have farming lands in the East depreciated in value on account of the immense tracts of country recently reclaimed from their native wildness? At first examination this would appear to be the inevitable result of the overstocking, so to speak, of the land market. The figures of the census do not, however, bear out this supposition. The value of the farms of the whole country increased between 1860 and 1870 only 39.39 per cent., while the value of the farms of Pennsylvania increased 57 per cent. This superiority was not owing to a greater increase in the population of the State, for the population of the whole country increased 23 per cent., while the increase in that of Pennsylvania was only 21 per cent.; nor was it due to the number of people engaged in agriculture, for the number of farmers in Pennsylvania increased only 26 per cent. during the *twenty* years ending with 1870, while the value of the farms in that State advanced during the same period 155 per cent.; nor yet could it be attributed to the increase in the *number of acres* of improved farming lands in Pennsylvania, for that increase was 33 per cent. between 1850 and 1860, and only 10 per cent. between 1860 and 1870. If the reader is acquainted with the manner of taking the census in this country, he will remember that the values given are simply the value of these lands for *agricultural* purposes. To what, then, can this decided increase in the value of Pennsylvania farms be attributed? We unhesitatingly answer, to improved farming implements and machinery, with corresponding improvements in methods of culture. The increase in the value of farms bears a remarkably close relation to the increase in the amount of capital invested in agricultural implements and machinery. In the whole country, for instance, between 1860 and 1870, the increase in the value of farming implements and machinery was 37 per cent. In Pennsylvania, during the same period, the increase was 58 per cent, and between 1850 and 1870 it was 142 per cent. If the reader will compare these last percentages of increase with those of the increase in the value of farms in Pennsylvania and in the United States at large, as given above, he cannot fail to see a coincidence. In New York, also, the increase in the value of farms between 1860 and 1870 was a little more than 58 per cent., while the increase in the value of farming implements and machinery was 57.66 per cent. To prove that this idea is not wholly fanciful, we can give some figures on the other side. In Arkansas, between 1860 and 1870, the number of acres of improved land decreased less than one per cent., but the value of farms in the State decreased 55 per cent., and the amount of capital invested in farming implements and machinery decreased 45 per cent. In Alabama the value of implements and machinery decreased during the same period 55 per cent., and we find a corresponding decrease

in the value of farms of 61 per cent. It may be said that these last two instances may be explained as effects of the late civil war. This is true, yet it does not militate against our theory; it rather confirms it. The people of these States were so impoverished by the war that they were not able to replace implements and machinery which had been worn out or destroyed, and the natural result was a deterioration in methods of culture and a consequent fall in the value of farming lands. The intelligent reader will have already seen the object of this figuring. It is to show the great value of improved methods of culture. An increase in the amount of money invested in improved machinery is followed by an advance in the value not only of agricultural produce, but *of the land itself;* and this advance is the well-merited reward of those who employ not only their hands, but their brains. Few who have not given attention to this subject can form any adequate conception of the trials and struggles which were undergone by those who first attempted to improve the old stereotyped methods of semi-cultivation which generally prevailed less than a generation ago. Their anxiety about the success of their experiments was frequently increased by gloomy prophecies uttered by their less progressive neighbors, who were not backward, if an experiment failed, in exhibiting a feeling very much akin to satisfaction. Still, as we have shown, they have their reward. Those who formerly criticised them are now glad to imitate them; and progressive agriculturists are generally recognized as public benefactors.

There is one crop which is so dependent for its value upon the amount of capital invested in implements and machinery that we have reserved its consideration for this place. We refer to the sugar crop. The complicated processes required in the production of sugar brought Louisiana in 1860 into the third place in the comparative value of farming implements and machinery in the leading States, though she stood tenth in the value of farms. Her total yield of sugar in 1859 was 221,726 hogsheads, and of molasses 13,439,772 gallons. In 1869 her yield of sugar was 80,706 hogsheads (decrease 63.03 per cent.) and 4,585,150 gallons of molasses (decrease 65.94 per cent.); and when the census was taken in the following year, the value of her farming implements and machinery ($7,159,333) showed a decrease of 61.06 per cent., and that of her farms a decrease of 66.7 per cent. (from $204,789,662 to $68,215,421). The average area annually cultivated in sugar-cane in Louisiana does not exceed (according to the *Report on Agriculture for* 1873) 150,000 acres, or about half of an ordinary county. If, as Mr. Bringier (one of the most intelligent planters in Louisiana) thinks, 10½ pounds of sugar-cane will easily be made to yield a pound of sugar and two-thirds of a pound of molasses by the best methods of production, even this small acreage would annually give 855,000,000 pounds of sugar and 570,000,000 pounds or

52,500,000 gallons of molasses. Our imports of sugar and molasses for 1872–3 amounted to 1,454,124,259 pounds of brown sugar, 509,504 pounds of refined sugar, and 43,533,909 gallons of molasses. In 1873–4 the amount was 1,594,306,354 pounds of brown sugar, 39,279 pounds of refined sugar and 47,189,837 gallons of molasses. The possible annual yield above indicated is, therefore, more than half of the average amount imported, and if, as is stated in the *Report on Agriculture*, there is no reason why the very small acreage should not be increased fivefold, except a lack of capital and enterprise, there is also no good reason why the United States should not produce sufficient sugar not only for home consumption, but for a large exportation to less favored climes.

We could not more appropriately close this article than by quoting the eloquent words of Mr. J. R. Dodge, the Statistician of the Department of Agriculture, to whose labors we have been indebted for many of our statements. In an address delivered before the National Agricultural Congress at Atlanta, Georgia (May 14, 1874), which is published in the *Report on Agriculture for* 1873 (pp. 146–151), he expresses the hope that the day may be hastened "when 25 per cent. of our people shall furnish a better and more varied agricultural supply than is now obtained by the 47 per cent. employed in agriculture; when the 21 per cent. now engaged in mining, manufacturing and the mechanic arts may become 42; when two blades of grass shall grow instead of one, twenty-five bushels of wheat instead of twelve, and an acre of cotton shall always bring a bale; when clover shall appear in the place of broom-sedge, the sun shall cease to smite with barrenness the southern slope, and many fields shall be green with mangolds for the fattening of lazy bullocks grazing on a thousand hills; when superior and more various implements shall, while dividing, multiply the labor of human muscle, and steam shall supplement and save the costly strength of beasts; when a moiety of the farmer's income may suffice to pay his taxes, his bills for commercial fertilizers and all purchases of farm-produce that he fails to procure from his own fair acres; when railroads shall cease to trouble with unscrupulous exactions, and unnecessary middlemen are evermore at rest; when the farmer's home shall be beautiful with flowers, his farm a smiling landscape, and his barn shall groan with the burden of plenty; and finally, when the farmer shall, in every section of a broad and prosperous land, be recognized as nature's nobleman, an honest man, the noblest work of God."

AMERICAN MANUFACTURES.

Early History.—The colonial policy, of which we have elsewhere given a description [see COMMERCE AND NAVIGATION], was not satisfied with imposing restrictions on trade. It was not enough that the colonies should place at the disposal of the mother-country all of their exports: they must be kept as helpless and as dependent as possible upon the liberality of "the British merchant" by restriction upon their manufactures. It was the policy of Great Britain to secure to herself the carriage of the produce of her colonies—to monopolize their raw materials, and to furnish her colonists with all the manufactures or other imports consumed by them. When the first settlements were made, however, the struggle for existence —the strenuous efforts required to procure sufficient food and to provide for the defence of their little communities from the treacherous savages by whom they were surrounded—left little leisure for manufactures. Even after a firm footing had been secured, some time was required to awaken the desire for home-production of articles which could be obtained of "the British merchant." In the pamphlet by Captain Edward Johnson, from which we have elsewhere quoted [see HISTORICAL SKETCH, page 94], entitled *Wonder-working Providences of Zion's Saviour in New England*, the enthusiastic author says: "For raiment our cloth hath not been cut short, as but of late years the traders that way have increased to such a number that their shops have continued full all the year long, all one England (*sic*); besides the Lord hath been pleased to increase sheep extraordinarily of late, hemp and flax here is great plenty. Hides here are more for the number of persons than in England; and for cloth, here is and would be material enough to make it, but the farmers deem it better for their profit to put away their cattle and corn for clothing than to set upon making of cloth. If the merchant's trade be not kept on foot, they fear greatly their corn and cattle will lie on their hands." This account was written, or at least published, in 1650, according to some authorities, and in 1654, according to others. Hubbard's *General History of New England* (chapter xxxii., not xxii. as given, probably by a typographical error, in Everett's *Speeches and Orations*, vol. ii., p. 80, note) gives a different account. We have mentioned elsewhere [see COMMERCE AND NAVIGATION] the impetus given to the business of ship-building by the cessation of immigration caused by the

civil wars in England. Speaking of the same period, Hubbard says: "For the future they [the colonists] were left more to stand upon their own legs and shift for themselves, for now there was a great change in the state of the country, the inhabitants being put to great straits by reason of the fall of the price of cattle, the breeding and increase of which had been the principal means of upholding the country; for whereas before all sorts of cattle were usually sold for £25 the head, by reason of the continual coming over of new families to plant the wilderness, now that fountain began to be dried, and there happened a total cessation of any passengers coming over, insomuch that the country of New England was to seek of a way to provide themselves of clothing, which they could not attain by selling of their cattle as before, which were now fallen from that huge price forementioned, first to £14 and £10 an head, and presently after (at least within a year) to £5 apiece; nor was there at that rate ready vent for them neither. Thus, the flood that brought in much wealth to many persons, the contrary ebb carried all away out of their reach. To help in this their exigent, the General Court *made several orders for the manufacture of linen and woollen cloth*, which, by God's blessing upon man's endeavor, in a little time stopped this gap in part, and soon after another door was opened by special providence. For when one hand was shut by way of supply from England, another was opened by way of traffic, first to the West Indies and Wine Islands, whereby, among other goods, much cotton-wool was brought into the country from the Indies, which the inhabitants learning to spin, and breeding of sheep and by sowing of hemp and flax, they soon found out a way to supply themselves with many necessaries of [cotton] woollen and linen cloth." The author of *New England's First Fruits*, writing in 1642, also speaks of the assistance rendered by Providence "in prospering hemp and flax so well that it is frequently sown, spun and woven into linen cloth, and in short time may serve as cordage; so of cotton-wool (which we may have at reasonable rates of the islands), and of our linen yarns we can make dimities and fustians for our summer clothing; and having a matter of 1000 sheep, which prosper well to begin withal, in a competent time we hope to have woollen cloth there made. And great and small cattle being now very frequently killed for food, their skins will afford us leather for boots and shoes and other uses; so that God is leading us by the hand into a way of clothing."

In 1645, as we learn from Hubbard, an iron foundery was established at Lynn, Mass., "upon a very commodious stream, which was very much promoted and strenuously carried on for some considerable time; but at length, instead of drawing out bars of iron for their country's use, there was hammered out nothing but contentions and law-suits, which was but a bad return for the undertakers. However, it gave the occasion to others to acquaint themselves with that skill to the great advantage of the colonies,

who have since that time found out many convenient places where very good iron, not much inferior to that of Bilboa, may be produced."

The reasons which we have given above kept back the manufactures of the colonies to such a degree that there was no material interference with the importation from England for many years. The necessity for legislation upon this subject was not so apparent as that for the restrictions upon navigation; but the spirit of that national selfishness which, when carried to an extreme, overreaches itself, was only dormant. In the mean time, the companies and proprietors to whom the colonies were first granted, in many instances, showed that commendable interest in the furtherance of the welfare of the colonists which the encouragement of manufactures was sure to bring about. Naturally desirous to receive the largest possible return for their outlay, they were zealous in endeavoring to ascertain what new materials the colonies produced and to make arrangements for their being worked up on the spot into conditions or articles in which the greatest value could be carried in the smallest possible space, and consequently at the least possible expense. As early as 1620 one hundred and fifty persons had been sent over to Virginia by the London Company [see HISTORICAL SKETCH, p. 93] to set up three iron-works; directions had been given for making cordage of hemp as well as of flax, and more especially of silk-grass, "which grew there naturally in great abundance, and was found upon experiment to make the best cordage and line in the world. Each family was ordered to set out one hundred plants of it, and the governor himself five thousand." None but the council and the heads of hundreds were to "wear gold in their clothes or to wear silk *until they made it themselves.*" They were to "put apprentices to trades, and not let them forsake them for planting tobacco or any such useless commodity." They were to make salt, pitch, tar, soap and ashes; to make oil of walnuts, and to employ apothecaries in distilling lees of beer; to make a small quantity of tobacco, and that very good. In accordance with these instructions, "a salt-work was set up at Cape Charles, on the Eastern Shore, and an iron-work at Falling Creek in James River (*sic*), where they made proof of good iron ore, and brought the whole work so near a perfection that they writ word to the company in London that they did not doubt but to finish the work and have plentiful provision of iron for them by the next Easter." This promise was not performed. A massacre by the Indians under Opecancanough intervened, which, as Beverly (from whom we have just quoted) states, "was such a disheartening to several good projects, then just advancing, that to this day [1722] they have never been put in execution—namely, the glass-houses in Jamestown and the iron-work at Falling Creek." He says elsewhere, however, in the chapter "Of the Earth and Soils," "The iron proved reasonably good, but before they got into the body of the mine the people were cut off in that fatal

massacre, and the project has never been set on foot since till of late; but it has not had its full trial." The glass-house referred to by Beverly deserves special mention, as it was, according to Bishop, "doubtless the first manufactory ever erected in this country. It stood in the woods, about a mile from Jamestown." It was erected in 1608, during the government of Capt. John Smith. When the Council in London, being anxious for an immediate return from their venture in gold and silver, wrote an angry letter to President Smith, and threatened that if the sum of £2000, which they had expended, was not repaid upon the ship's return, they would desert the infant colony, Smith "returned a plain and scholarly answer" by the ship, and sent over "trials of pitch, tar, glass, frankincense and soap-ashes, with what wainscoat and clapboard could be provided." This was the first export made from the British colonies to any foreign country, for the load of sassafras gathered near Cape Cod, in 1608, could hardly be classed under this head, as it did not come from a *settlement*. The first exports from America to England consisted, therefore, almost entirely of *manufactured* articles, as Mr. Bishop very justly observes. This same massacre caused the loss of the secret of a lead mine in the neighborhood which was known to the superintendent of the iron-work, who "made use of it to furnish all the neighbors with bullets and shot." The author of *A Perfect Description of Virginia*, writing in 1648, says: "Iron ore and rich mines are in abundance in the land—fit streams and waters to erect iron-mills, woods never to be destroyed to burn coal [charcoal for smelting]. Trial hath been made of this iron ore, and [there is] not better and richer in the world; his work erected would be worth as much as a silver mine." The same writer has great hopes with reference to the culture of the silk-worm in Virginia and the manufacture of silk. To aid these industries, acts had been passed by the colonial assembly, as early as November and December, 1621, for encouraging the planting of mulberry trees and the making of silk; but legislative effort, proprietary encouragement—nay, the personal interest of royalty itself (for James I. twice sent over silk-worm seed of the best and most expensive kind, paid for out of his own royal pocket)—could not establish these industries upon a permanent footing. A law passed in 1656 imposed a fine upon every planter who did not possess sufficient patriotism to have at least one mulberry tree to every ten acres of land. The author to whose sanguine expectations we have referred says: "For mulberry trees, the natural and proper food for silk-worms, they have abundance in the woods, and some so large that one tree contains as many leaves as will feed silk-worms that will make as much silk as may be worth five pounds sterling money. This some Frenchmen affirm. And now they desire silk-worm's seed, which is sent them, and their hopes are good of the thriving of it—a commodity which may soon enrich them all with little labor, care or pains; all mate-

rials so plentiful at hand; the food in abundance, the climate warm, and the work done in five weeks' time and within doors, by women and children as well as men, and at that time of the year (in May) that it hinders not any other work, as planting, sowing or the like employments. This is such an advantage that had the Dutch the like of it in any of their plantations they would improve it to their certain gain in the trade of silk from Persia and China, which we fetch with great charge and expense and hazard, *and enrich heathen and Mahumetans* (*sic*) *greatly.* But these things lack public and state encouragements to begin the work." With all the "public and state encouragements" that could be brought to bear, in the shape of premiums and assistance for the willing and fines for the refractory, this country has not yet done sufficiently well in the varied attempts at silk culture and manufacture to prevent large quantities of "gold or its equivalent" from being yearly transferred from Christian pockets into the coffers of "heathen and Mahumetans."

As no favor could be obtained for the tobacco trade, the impositions upon which are elsewhere mentioned [see COMMERCE AND NAVIGATION], and as the British merchant afforded the Virginians, according to Beverley, but a bare supply of clothing for their crops, strenuous efforts were made in 1666 to apply some legislative stimulant to the manufacture of cloth. The colonial assembly caused looms and workshops to be set up in each county at the county charge. Prizes had been offered in 1662 for the best linen and woollen cloth, and fifty pounds of tobacco for every pound of silk, which latter reward was now renewed. Every neglect of making flax or hemp was to be visited with severe penalties. Sir William Berkeley, however feeble his conduct during the Bacon Rebellion may be deemed, showed great energy at this time, himself engaging in the manufacture of potash, flax, hemp and silk. Sir Edmund Andros (who is much better known in our colonial history in connection with his unsuccessful attempt to seize the charter of Connecticut) was also "a great encourager of manufactures." In his time fulling-mills were set up in Virginia by act of Assembly. He also showed great interest in the propagation of cotton. His successor, Col. Nicholson, when he was lieutenant-governor, had shown great zeal in fostering colonial manufactures, and had procured the passage of acts "for the encouragement of linen manufacture and to promote the leather trade by tanning, currying and shoemaking." In 1698, however, when he became governor of Virginia, "he went not with that smoothness on his brow he had carried with him when he was appointed lieutenant-governor. He talked then no more of improving of manufactures, towns and trade. Instead of encouraging the manufactures he sent over inhuman memorials against them, opposite to all reason. In one of these he remonstrates 'that the tobacco of that country often bears so low a price that it would not yield clothes to the people that make it;'

and yet presently after, in the same memorial, he recommends it to the Parliament 'to pass an act forbidding the plantations to make their own clothing,' which is, in other words, desiring a charitable law that planters shall go naked." Beverly, from whom we have just quoted, ascribes the change in Nicholson's views to the influence of "the British merchant." Campbell asserts that it was thought, at the time, "to be not a little owing to a disappointment in love." These causes may have co-operated, but the selfishness of the colonial policy which cared only for the interests of "the British merchant" will account for worse instances of inhumanity than the one which we have just given.

All efforts to establish the culture of silk in Virginia upon a firm basis were unsuccessful. The reader will find a reason for these successive failures in the following passage from Bancroft, which gives in condensed form the results derived from the experience of past ages: "Legislation, though it can favor industry, cannot create it. When soil, men and circumstances combine to render a manufacture desirable, legislation can protect the infancy of enterprise against the unequal competition with established skill. The culture of silk, long, earnestly and frequently recommended to the attention of Virginia, is successfully pursued only when a superfluity of labor exists in a redundant population. In America the first wants of life left no labor without a demand; silk-worms could not be cared for where every comfort of household existence required to be created. It is a law of nature that in a new country, under the temperate zone, corn and cattle will be raised rather than silk or wine." It was natural in a country where tobacco could be produced with comparative ease, and of a superior quality, of which *A Perfect Description of Virginia* said, as early as 1648, "A man can plant two thousand weight a year of it, and also sufficient corn and roots and other provisions for himself"—it was natural that that occupation should be preferred which afforded the greatest profit. So far as improvement in manufactures is concerned, the comparatively barren soil of New England was an advantage, just as the fact that the soil of Great Britain cannot produce sufficient food for the support of her teeming population has been one cause of the marvellous progress and success of British manufactures. New England was also favored by another circumstance, which will appear in this extract from the *Account of the European Settlements in America:* "They are almost the only one of our colonies which have much of the woollen and linen manufactures. Of the former they have nearly as much as suffices for their own clothing. It is a close and strong, but a coarse, stubborn sort of cloth. A number of Presbyterians from the North of Ireland, driven thence, as it is said, by the severity of their landlords, from an affinity in religious sentiments, chose New England as their place of refuge. Those people brought with them their skill in the linen manufacture; and meeting very large encouragement, they

exercised it to the great advantage of this colony. At present (1757) they make large quantities, and of a very good kind." This author had what must have been considered in his time "advanced" views. He says, elsewhere: "The general plan of our management with regard to the trade of our colonies, methinks, ought to be to encourage in every one of them some separate and distinct articles, such as not interfering might enable them to trade with each other and all to trade to advantage with their mother-country. This, and that they should not go largely into manufactures interfering with ours, are the only points at which our restrictions should aim. *These purposes ought not to be accomplished by absolute prohibitions and penalties which would be unpolitical* [*i. e.*, impolitic] and unjust, but by the way of diversion, by encouraging them to fall into [the production of] such things as find a demand with ourselves at home. By this means Great Britain and all its dependencies will have a common interest. They will play into each other's hands, and the trade so dispersed will be of infinitely more advantage to us than if all its several articles were produced and manufactured within (*sic*) ourselves."

This policy was far too liberal and judicious for the narrow-minded men who controlled the affairs of the colonies during the first three-fourths of the eighteenth century. The Navigation Act was designed to prevent the settlers from seeking a *foreign* market for their productions; the first direct legislative blow at manufactures was struck in 1699, by an act designed to confine the *home* market for woollen goods within the narrow limits of each separate colony. "Wool was the great staple of England, and its growers and manufacturers envied the colonies the possession of a flock of sheep, a spindle or a loom." The preamble to the act states that colonial industry would "inevitably sink the value of lands" in England; therefore, says the law, "After the first day of December, 1699, no wool or manufacture made or mixed with wool, being the produce or manufacture of any of the English plantations in America, shall be loaden in any ship or vessel, upon any pretence whatsoever, nor loaden upon any horse, cart or other carriage to be carried out of the English plantations *to any other of the said plantations, or to any other place whatsoever*," under penalty of forfeiting ship and cargo, and £500 for each offence. The oppressiveness of this law will be better appreciated when the reader is reminded that not only had the woollen manufacture made considerable progress in several of the colonies, but in one, at least (Pennsylvania), the founder had so successfully encouraged this branch of industry that the fabrics made there were highly prized in the most distant provinces. Now the fabrics of Pennsylvania or Connecticut could not seek a market in Massachusetts, nor could they be carried to Albany to traffic with the Indians. An English mariner was not permitted to purchase in Boston woollens of a greater value than forty shillings. The charter-colonies, were, two years

after the passage of this act, reproached by the lords of trade because they promoted and propagated "woollen and other manufactures proper for England." Canada was considered well worth conquering, because there "the cold is extreme, and snow lies so long on the ground that sheep will never thrive so as to make the woollen manufacture possible, which is the only thing that can make a plantation unprofitable to the Crown." Even William Pitt, the elder, who opposed the Stamp Act, could say, seventy years later, "Should our sovereign authority of legislative and commercial control be denied, *I would not suffer even a nail for a horseshoe to be manufactured in America!*" During the intermediate seventy years the same policy was continued. In 1719 a resolution of the House of Commons declared "that the erection of manufactories in the colonies tended to lessen their dependency upon Great Britain." The members of that august legislative body were assisted in making this wonderful discovery by the complaints of "the British merchant" and the reports of the colonial governors. Lord Cornbury, for instance, in his report upon the state of the province of New York, says: "I myself have seen serge made upon Long Island that any man may wear. Now, if they begin to make serge, they will in time make coarse cloth, and then fine. How far this will be for the service of England, I submit to better judgments." He does not, however, wait for better judgments to decide, but anticipates the action of the House of Commons by giving his opinion that "the colonies can never be kept dependent upon and subservient to England if they are suffered to go on in the notions they have that, as they are Englishmen, so they may set up the same manufactures here as people do in England." Under pretence of encouraging the importation of American naval stores, the British iron-masters procured the insertion into the act for regulating the bounties upon that trade of a clause to prohibit the production of iron in the colonies, which provided that "none in the plantations should manufacture iron wares of any kind whatsoever." The colonial agents remonstrated, and the clause was dropped. New England already possessed six furnaces and nineteen forges. Pennsylvania produced so large a quantity as to furnish a supply for the other colonies.

In 1731 the House of Commons directed the Board of Trade and Plantations to make a report "with respect to laws made, manufactures set up or trade carried on in the colonies detrimental to the trade, navigation or manufacture of Great Britain." Some startling discoveries were made. Massachusetts had passed an act for the encouragement of the manufacture of paper, which law interfered with "the profit made by the British merchant on foreign paper sent thither." In New England and New Jersey "great quantities of hats are made, of which the company of hatters in London have complained to us that great quantities (*sic*) of these hats are exported to Spain, Portugal and our West India Islands." They

submitted it to the wisdom of the honorable House "whether it might not be expedient to give these colonies proper encouragements for turning their industry to such manufactures and products as might be of service to Great Britain." The "honorable House" was not found wanting in this emergency, though the reader may question their wisdom in attempting to encourage one manufacture in the colonies by prohibiting another. An act was forthwith passed "to prevent the exportation of hats out of any of His Majesty's colonies or plantations in America, and to restrain the number of apprentices taken by the hat-makers in the said colonies, and for the better encouraging the making of hats in Great Britain." By this act hats could be neither exported to a foreign country nor transported from one colony into another. No person was permitted to make hats unless he had served an apprenticeship for seven years, or to employ more than two apprentices at any one time.

In 1750 the manufacture of iron and steel in the colonies had made such progress that the wisdom of the House of Commons was called into requisition to restrain it. Unwrought American iron was excluded by a duty from the English market. The people of the colonies were therefore tempted to acquire such skill as to make spikes, large nails and steel cheaper than they could be imported from England. A special committee, headed by the famous Charles Townshend [see HISTORICAL SKETCH, page 99], was appointed to devise some method of keeping these misguided men out of temptation. As the production of British iron began to be limited by the decrease of their forests (for their smelting was done with charcoal, fossil coal not being used, as yet, for that purpose), the committee attempted to kill two birds with one stone—to provide unwrought iron for England, and to prevent its advancing beyond that stage of production in America. They therefore brought in a bill "To encourage the importation of pig and bar iron from His Majesty's colonies in America, and to prevent the erection of any mill or other engine for the rolling and slitting of iron, or any plating forge to work with a tilt-hammer, or any furnace for making steel in any of said colonies." By this bill, which became a law, pig-iron was admitted into England duty free, and bar-iron was admitted duty free into the port of London. The erection *or continuance* of any such establishments as are named in the title of the act was prohibited under penalty of £200. New ones were declared a *common nuisance*, which the governors of the provinces were bound, upon information, to abate under penalty of £500. There was even a vote upon the proposal that every slitting-mill then standing in America should be demolished; but this was too strong for even a British House of Commons sitting in the year 1750, though it was rejected by the small majority of *twenty-two*. However, an immediate return was required of every such mill already existing, and the number was never to be increased. These tyrannical prohibitions could have but

one effect—viz., that of forcing the colonists to consider the great advantages of independence of a control which was so openly exercised in utter disregard of the plainest principles of natural justice. Even before the formation of non-importation associations many private individuals had begun a careful retrenchment of their expenditures for foreign goods; and when the Stamp Act brought about that unity of feeling which made a general revolt possible, the first peaceful blow was struck at the pocket of the British manufacturer, for whose benefit the various restraining acts had been designed. Societies were formed in several of the colonies "for the promotion of arts, agriculture and economy." To keep up the supply of wool, many people entered into an agreement not only to abstain from eating mutton, but to cease dealing with any butcher who should kill sheep or lambs or should expose the forbidden meat for sale. Families determined to make their own linen, and homespun became fashionable as well as honorable. In 1765 fourteen new manufactures had been established in America, and the imports into the colonies from Great Britain had fallen off nearly twenty per cent. Many ships were withdrawn from the colonial trade for want of employment, and many weavers and workmen were forced to emigrate to America. Upon the anniversary day of one of these societies more than three hundred young women met on Boston Common and devoted the day to spinning flax. The graduating class of Harvard College, in 1770, appeared in homespun, being evidently determined not to be outdone in patriotism. These measures were taken while there was still some hope of reconciliation with the mother-country, and with the design of obtaining some degree of justice from the Parliament of Great Britain; so much the more were they necessary when independence was the end in view. The first measures of the patriots aimed, therefore, at establishing their independence upon the basis of the productive industry of the country, as is shown by the action of the first Continental Congress. They prepared a plan for commercial non-intercourse with Great Britain consisting of fourteen articles, and called *The American Association*. By the seventh article they agree to use their utmost endeavors "to improve the breed of sheep and to increase their numbers to the greatest extent," and by the eighth that they "will promote agriculture, arts and the manufactures of the country, especially those of wool;" also that they "will wear no other mourning than a piece of crape or ribbon," mourning goods being something which they were absolutely obliged to import or do without. The selfish policy of Great Britain now recoiled upon her own head. We had been restrained as far as possible from forming commercial connections with other countries; we had been kept as far as possible, to use Lord Cornbury's words, "dependent upon and subservient to" Great Britain; and while the frontiers of the colonies were drenched with blood shed in the quarrels of England's king, "their inte-

rior parts," as Barré has it, "yielded all their little savings for her emolument." Having now broken loose from her thrall, the new-fledged nation was thrown upon her own resources, and furnished another proof of the adage, "Necessity is the mother of invention." The few manufactures which existed before the Revolution received a fresh impulse, and new ones were undertaken. By a species of poetic justice one of the earliest of these was the manufacture of nails, upon which Lord Chatham had laid his memorable prohibition. The first attempt to manufacture cut nails in New England was made in the southern part of Massachusetts during the Revolutionary war, with old iron hoops for the material and a pair of shears for the machine. As early as March 27, 1775, according to Bishop, a committee of the Virginia Convention, previously appointed to report a plan for the encouragement of arts and manufactures, reported a series of resolutions, which were unanimously adopted, urging the people to promote the manufacture of cloth, salt, gunpowder, nails, wire, etc., and largely to encourage the making of *steel*, as there would be a great demand for that article. In the following August another resolution was passed, that "in case the British ministry attempts to enforce the act of Parliament preventing the erection of plating- and slitting-mills in America, the Convention will recompense to the proprietors of the first two of such mills as shall be finished and set to work in this colony all losses they shall respectively sustain in consequence of such endeavors of administration." These measures, begun before the Declaration of Independence, give a fair idea of what the manufactures of this country were during the Revolutionary war. The patriots were satisfied if they could secure the bare necessities of life—food and clothing for themselves and munitions of war wherewith to achieve their independence. The scarcity of clothing suitable for the army, for which woollen fabrics were required, was early experienced, and continued throughout the war to embarrass the commissariat department, to impair the health and *morale* of the soldiery, and sometimes to cause an insubordination which was a source of anxiety to the patriots and of danger to their cause. Congress was therefore obliged to make frequent appeals to the people to increase their supplies of wool and of other materials, and to promote the manufacture of cloth for the supply of their destitute countrymen who were fighting the battles of freedom. What was the aggregate value of all or of any branch of the colonial manufactures it is difficult to estimate; and there is a like difficulty in fixing the amount of any given article which they could, upon an emergency, produce. Bishop says: "The household industry of the New England provinces and of some parts of the middle colonies was nearly or quite equal to the ordinary wants of the inhabitants for clothing. A writer of this date, in recommending an increased use of the spinning-wheel, estimated that out of two millions of inhabitants in the thirteen colonies, there were at least 450,000

females who could be employed in spinning. If only one-third of them were so employed, there would be 150,000, each of whom could spin thread for six yards of linen per week during the five months of the year in which it was customary to use the little wheel. This would give 23,400,000 yards of cloth annually, or twelve yards to each of the two millions of the population—a quantity quite sufficient for that portion of their clothing. He supposed this number to be 30,000 more than were then so employed. As all the flax produced was already spun, he proposed to employ hemp, of which foreign lawns, dowlas, osnaburgs, etc., were made, and which was then used to advantage in some parts of this country. His own county (in New Jersey) had produced the previous year above 100 tons, and could produce 500 tons, of hemp, of which each pound would make nearly one yard of linen (sail-cloth excepted). The province (to which the culture was not confined) could readily produce sufficient hemp to make 4,500,000 yards of cloth—enough to supply the 30,000 extra spinners." This estimate, however, of the correctness of which we have no means at present of judging, only provides for the supply of *linen* goods, and leaves the problem of procuring woollen clothing for the army unsolved. The solution of that problem formed one of the most arduous tasks which Congress had to perform. In November, 1775, it was resolved "that clothing be provided for the army by the continent, to be paid for by stopping 1⅔ dollars per month out of the soldiers' pay; that as much as possible of the cloth be dyed brown, the distinction of the regiments to be made in the facings, and that a man who brought into the camp a good new blanket should be allowed two dollars therefor, and be at liberty to take it away after the campaign. In the following March the several assemblies, conventions, etc., were recommended to use their utmost endeavors to promote the culture of hemp, flax and cotton, and the growth of wool, in the United States, to take the earliest means for erecting and establishing in each colony a society for the improvement of agriculture, arts, manufactures and commerce, and to maintain a correspondence between such societies, that the rich and numerous natural advantages of the country for supporting its inhabitants might not be neglected. They were further recommended to consider of ways and means of introducing the manufactures of duck, sail-cloth and steel where they were not already understood, and of encouraging, increasing and improving them where they were. Each colony was called upon in June to furnish a suit of clothes (of which the waistcoat and breeches might be of deer-leather, if to be had on reasonable terms), a blanket, felt hat, two shirts, two pairs of hose and two pairs of shoes for each soldier in the army [from said colony], to be paid for by Congress. In July the commissary was granted a quantity of gunpowder, with which to purchase deer-skins for breeches, and the secret committee was directed to fall upon ways and means of procuring a further supply of deer-skins

from Georgia and South Carolina. At the same time, John Griffith, 'an experienced artificer in making and dressing fullers' shears, was, on petition of the inhabitants of Chester county, Pa., released from service and ordered to return home to follow his trade." *A large portion of the clothing of the soldiers was of linen*, which was a poor defence against the rigors of a winter campaign. The somewhat arbitrary seizure of the requisite articles by the government, to be paid for at a stipulated price, and the depreciation of the Continental currency [see COINS AND CURRENCY], increased, of course, the difficulties of the manufacturers. One of these was obliged to write to the Board of War that, "in consequence of the unexpected rise in the prices of wool and labor, he would not be able to fulfil a contract which he had made to supply cloth for the army at a time when he thought that prices had reached the highest possible point. Wool was at 7*s.* 6*d.* a pound, with a prospect of rising to 10*s.* Cloth which he had engaged to supply at 20*s.* a yard could not be furnished for less than 27*s.* 6*d.*, as those who had engaged to sell him wool at 7*s.* 6*d.* thought it too cheap, and his spinners and weavers in each branch had doubled their wages." The privations of the American army while encamped at Valley Forge, in the winter of 1778, were greatly aggravated by the scarcity of clothing among officers as well as men. Upon one occasion the aids of Baron Steuben invited a number of young officers to dine at their quarters, for admission to which entertainment torn clothes (as festal garments) were an indispensable requisite. "Such a set of ragged, and at the same time merry, fellows," writes the baron's secretary, "were never before brought together. The baron loved to speak of that dinner and his *sans culottes*, as he called us. Thus this denomination was first invented in America and applied to the brave officers and soldiers of the Revolutionary army at a time when it could not have been foreseen that the name which honored the followers of Washington would afterward be assumed by the satellites of a Marat and a Robespierre." The etymology of the word suggests to us the idea that the prevailing trouble among the patriots was such a fracture of the nether garments as made an advance much more desirable than a retreat. In 1780 the manufacturers for the army refused to go on with their work or deliver what was completed without immediate payment. This was owing to the depreciation of the currency, and their case was certainly hard. When Congress could at any time obtain at the printing-office a cart-load of money, of which an adequate amount weighed nearly as much as the goods themselves, and yet even that amount might shrink to half the value within a week, how could the manufacturer maintain or retain his workmen, who could not support their families with paper pellets and patriotism? He had, then, reason to rejoice when the Continental currency, "like an aged man expiring by the decays of nature, without a sigh or a groan, fell asleep in the hands of its last

possessor." Never were the energy, the courage and the perseverance of any people so severely tried by efforts to recover from the effects of even a disastrous war as were those of the American people by their endeavors to replace the losses which they had incurred during the struggle for independence, and by introducing home production to make that independence something more than a mere word. A worse than depreciated paper currency, which before its death had inflicted countless wounds upon the resources of its holders—a heavy public debt, a commerce temporarily prostrated and a general government the definition of whose powers consisted mainly of such vague generalities that when any vigorous action was desired it was usually discovered that there was no right reserved to *command*, and that the most important measures could only be "recommended,"—such were the attendant circumstances when the United States of America, with their independence acknowledged, attempted first to "start in business" for themselves. The British government was, of course, ready to throw every obstacle in the way of the progress of the infant nation. As early as 1774, the exportation to America of any tools used in the cotton or linen manufacture had been prohibited under the heavy penalties of fine and forfeiture. This law was re-enacted and extended in 1781, and it was strictly executed. In 1786, as is stated in White's *Memoir of Samuel Slater*, "Tench Coxe entered into a bond with a person who engaged to send him from London complete brass models of Arkwright's patents. The machinery was completed and packed, but was detected by the examining officer and forfeited, according to the existing laws of Great Britain to prevent the exportation of machinery." The exportation of artificers in various branches of manufacture had also been prohibited; and if this portion of the law had been as easy of execution as that with reference to machinery, this country would probably have continued to be almost completely at the mercy of the British merchant for a long time. The intelligent artisan is not, however, so easily confined by a paper barrier as machinery. "The world is all before him where to choose," and he generally prefers to choose for himself. The very attempt to shackle his freedom is a dangerous reminder that his services are desired and would be highly valued elsewhere, for otherwise there would be no necessity for such enactments. His curiosity is excited; he becomes eager to learn what advantages would accrue if he were to exercise a right which he feels and knows to be his—viz., the right to go wherever he can use to the greatest advantage the faculties with which he has been endowed not by the law, but by Providence, and the acquirements for which he is indebted not to the law, but to his own exertions. It is probable that the above or a similar course of reasoning passed through the mind of Samuel Slater and led him to pay special attention to a notice in the newspapers of a grant of £100 by the legislature of Pennsylvania, in

Oct., 1788, to John Hague, for introducing a machine for carding cotton, and of the establishment of a society, with legislative encouragement, for the manufacture of cottou. He sailed from London September 13, 1789, and reached New York on the 18th of November. The manner in which Mr. Slater came to America is a striking proof of the inefficacy of laws to shackle (if we may be allowed the expression) the course of human industry. The emigration of artisaus being restricted, the exportation of models and machinery beiug prohibited, he did not, wheu he left Derby, iuform his family of his destination, and "he resolved not to take any pattern uor have any writing or memorandum about him, but trusted wholly to his acquirements in the business and to his excellent memory. He was aware that there was danger of his being stopped, as the government restrictions were very severe and very unjust—the officers were very scrupulous in searching every passenger to America. He told me himself that he had nothing about him but his indenture, which he kept concealed; and this was his only introduction and recommendation in the New World." The designs and models of the machinery which was to give a fresh impulse to American manufacturing industry came over, therefore, carefully packed up in the head of an intelligent artisan—a place in which they were safe eveu from the Argus eyes of the British officials. Mr. Slater was first employed by the New York Manufacturing Company, but the state of their business was inferior to what he had been accustomed to in his own country, and he writes to Moses Browu, of Providence, R. I.: "We have but oue card [and] two machines, two spinuing-jennies, which I think are not worth using. My encouragement is pretty good, but should much rather have the care of the perpetual carding and spinning. *My intention is to erect a perpetual carding and spinning* [meaning the Arkwright patents]." Moses Brown furnished the capital for his successors in busiuess, Almy aud Brown, the former being his son-in-law and the latter his kinsman. They had attempted water-frame spinning, and had failed, and the reply of Mr. Brown to Slater's letter is worthy of being put on record as an example of candor, of liberality aud of undaunted perseverance which prove that the writer was fully deserving of the success attained. He says: "We are destitute of a person acquainted with water-frame spinning. Thy being already eugaged in a factory with many able proprietors, we hardly suppose we can give thee encouragement adequate to leaving thy present employ. As the frame we have is the first attempt of the kind that has been made in America, it is too imperfect to afford much encouragement. We hardly know what to say to thee; but if thou thought thou couldst perfect and conduct them to profit, if thou wilt come and do it, thou shalt have all the profits made of them over and above the interest of the money they cost and the wear and tear of them. We will find stock and be repaid in yarn, as we may agree, for six months. And this

we do for the information thou canst give, if fully acquainted with the business." In the concluding portion of the letter, Mr. Brown holds out to Slater the promise of "the *credit* as well as the advantage of perfecting the first water-mill [for spinning purposes] in America." When Slater came to Pawtucket and saw the machinery of Almy & Brown, he said, "These will not do. They are good for nothing in their present condition, nor can they be made to answer." As different persons who had seen these machines, and Mr. Almy himself, had pronounced them to be "worth nothing more than so much old iron," this decision did not surprise the proprietors. Mr. Slater used his best efforts to accomplish something with these wretched materials, but in vain. "After various disappointments, it was proposed that Mr. Slater should erect the series of machines called 'the Arkwright patents,' which he would not listen to till he was promised a man to work on wood who should be put under bonds not to steal the patterns or disclose the nature of the works. 'Under my proposals,' says he, 'if I do not make as good yarn as they do in England, I will have nothing for my services, but will throw the whole of what I have attempted over the bridge.'" Mr. Slater received by the contract a half interest in the business, and "on the 18th of January, 1790, Mr. Brown took him to Pawtucket, where he commenced the machinery chiefly with his own hands. On the 20th of December he started three cards, drawing and roving frames, and two frames of 72 spindles, which were worked by an old fulling-mill wheel in a clothier's building, where they were used for twenty months, at which time several thousand pounds of yarn had accumulated on their hands, notwithstanding all attempts to sell or weave it. Early in 1793, Almy, Brown & Slater built a small factory, where the machinery was set in motion and increased as occasion served. Thus, after unexpected difficulties, delays and expenses, arising out of the want of patterns, suitable materials and workmen, was completed and put in operation the first successful water-mill for cotton in the United States."

Spinning-jennies had been used for some time. Samuel Wetherill, of Philadelphia, had conducted throughout the war a private manufacture of cotton and woollen goods, and in the *Pennsylvania Gazette* for April 3, 1782, appears his advertisement of "PHILADELPHIA MANUFACTURES, suitable for every season of the year—viz., jeans, fustians, everlastings, coatings, etc.—to be sold by the subscriber at his dwelling-house and manufactory, in South Alley, between Market Street and Arch Street and between Fifth and Sixth Streets, on Hudson's Square." In 1786 the Hon. Hugh Orr, of East Bridgewater, Mass., employed two brothers, Robert and Alexander Barr, to construct the first spinning-jenny and stock-card made in the United States. In March, 1787, Thomas Somers, an English midshipman who had been "brought up to the cotton manufacture," also constructed a model, under the direction of Mr. Orr, which was afterward

known as the "State's model," as Mr. Orr received a compensation from the State for exhibiting it and explaining its capabilities. In the same year the "Pennsylvania Society for the Encouragement of Manufactures and the Useful Arts" was instituted, and on the 9th of August of the same year Tench Coxe delivered an address before this society in the University of Pennsylvania, which was afterward published. "The speaker made a vigorous assault upon the various prejudices at that time entertained against the introduction of machinery and the establishment of manufactories. A proper regard for the interests of agriculture was recommended as the most important in any measures which might be adopted for the advancement of manufactures. The cultivation of cotton in the Southern States was recommended as an article from which the best-informed manufacturers expected the greatest profits, and upon which some established factories depended. It thrived as well there, he said, as in any part of the world, and those States raised it formerly when the price was not half what it had been for several years past. It was then worth double the money which it sold for before the Revolution, European nations having prohibited its exportation from their colonies to foreign countries. The great progress made in agriculture and manufactures, particularly in Pennsylvania, since the year 1762, and still more since the late war, was adverted to, and a lengthy list of articles then made in the State was given. These included hosiery, hats and gloves, wearing apparel, coarse linens and woollens, some cotton goods, wool and cotton cards, etc. The advantage of America in having the raw materials and market at home, in exemption from duties, in the ability to sell for cash by the piece instead of large invoices on long credits, as imported goods were then sold, in the superior strength of American linens, in the better atmosphere for bleaching linen and cotton, were severally urged as so many inducements to undertake manufactures. He recommended the exemption from duties of raw materials, dye-stuffs and certain implements, premiums for useful inventions and processes, the invitation of foreign artists to settle by grants of land, and that every emigrant ship should be visited to ascertain what persons were on board capable of constructing useful machines or of conducting manufactures. The wasteful use of foreign manufactures was illustrated by the fact that the importation into Philadelphia alone of the finer kinds of coat, vest and sleeve buttons, buckles and other trinkets was supposed to amount in a single year to ten thousand pounds, and to cost the wearers sixty thousand dollars. In urging the benefits to the agricultural interests of manufactures in their midst, he ventured the assertion that the value of American productions annually consumed by the manufacturers of the State, exclusive of the makers of flour, lumber and bar-iron, was double the aggregate of all its exports in the most plentiful year." The advantage of the American atmosphere for bleaching pur-

poses was so marked that it is said that "A company of English merchants with a large capital was about being formed before the Revolution to import the *brown* linens of Europe, to be bleached in this country," where the superior sunshine and plenty of land were inducements. The operations of this society were conducted with great zeal and energy. Though they met with serious obstacles, such as the difficulty of finding artists and of making machines without models or with imperfect ones, as well as the obstructions caused by foreign agents, who thought that their craft was endangered by these efforts to foster home industry—though, owing to these circumstances, they did not get their first loom started until April 12, 1788, by the 23d of August they had increased the number of looms to twenty-six, had turned out 11,367 yards of various fabrics, and had already realized from their sales a net profit which was at the rate of about 30 per cent. per annum upon their capital. In the mean time, flax had fallen from nine pence and ten pence a pound to seven pence, with the strong probability that it would go lower on account of the increased attention now paid to its cultivation, and cotton had come down from 36 cents per pound to 27 and 29 cents per pound. The price of cotton would be kept down should its cultivation succeed in the Southern States. If a good profit had been realized by the manufacture on a limited scale of materials purchased at the former high rates, one-half of which—the linen yarn—could not be spun by machinery, it was certain that more extensive machines, *moved by horses or water*, must greatly increase the profit. Carding-machines for which they had paid £100 could now be obtained for £60, and a jenny for which they had paid £28, for £15, and smaller implements were reduced in price in proportion." Careful estimates showed that an American jean better than the British could be produced 25 per cent. cheaper. The American goods were above half an inch wider and much heavier than the imported. This exhibit of the operations of the society was considered (and with reason) as highly encouraging by the committee of the board of managers, which consisted of George Clymer and Tench Coxe. We have already alluded to Mr. Coxe's failure to obtain the Arkwright machinery. A still more serious difficulty obliged the Legislature of Pennsylvania to pass (March 29, 1787) an act styled "An Act to encourage and protect the Manufactures of this State," which prohibited under certain penalties the exportation of manufacturing machines, the scarcity of which was the great obstacle to such undertakings. This act owed its existence to the fact that in the year 1787 two carding- and spinning-machines in the possession of a citizen of Philadelphia which were calculated to save the labor of one hundred and twenty persons were purchased by the agency of a British artisan, packed up in cases as common merchandise and shipped to Liverpool. This act, the operation of which was limited to two years, should not be put upon the same level with the

acts of Parliament of 1774 and of 1781, prohibiting the exportation of machinery to America. The British acts were dictated by the selfish desire to keep the colonies in a state of dependence; the American act was an attempt to defend home industry against such underhand machinations as the one which we have just described. "The British merchant" of that period saw that his profits would be seriously affected by the progress of American manufactures. To prevent his misguided American customers from pursuing a course which threatened to materially diminish his income, he was ready to use every means in his power, and the activity exhibited in every section of this country so shocked his nervous system that perhaps some excuse may be found for even such proceedings as the following, which occurred soon after the investment in machinery above mentioned, which was made by a British artisan: "A quantity of cotton seed is stated to have been purchased in Virginia and burned, in order to prevent, if possible, the extension of the cotton manufactures in America and their injurious effects upon the importation of Manchester goods."

Such were the measures taken to stifle the spirit of enterprise which bid fair to make the American people one of the great powers of the earth. During this same year (1787), however, an event occurred which baffled the calculations of both the British merchant and the British statesman, and which gave an impetus to the manufactures of this country which speedily placed them upon a firm basis. We refer to the meeting of the Federal Convention and the adoption of the Federal Constitution. Capital is said to be "timid." No man wishes to risk his money in new enterprises when he literally does not know "what a day may bring forth." The peaceful adoption and ratification of the Federal Constitution proved that it was possible for the people of this country, however conflicting the interests of the various sections appeared, to make those mutual concessions which, if continued, would ensure the harmonious action requisite for a healthy development of the resources of the infant nation. The convention met just at the proper time to be influenced in favor of manufactures, as the society which was formed at Philadelphia during the year 1787 was just beginning active operations. It is thought that the efforts of that society to introduce the cotton manufacture, combined with the earnest recommendation of Mr. Coxe, had great weight with the members of the convention, especially with those from the South. Certain it is that the Southern delegates, when they returned to their homes, generally recommended the culture of cotton, and with such success as to secure increased attention to that crop.

The condition of this country immediately before the framing of the Constitution is thus portrayed by a writer who is well acquainted with the history of the first half century of our national existence: "The state of the industry of the country was depressed to a point of distress unknown in the midnight of revolution. The shipping had dwindled to nothing;

the manufacturing establishments were kept up by bounties and by patriotic associations and subscriptions, and even the common trades were threatened with ruin. It was plain, for instance, that in the comparative condition of the United States and Great Britain not a hatter, a boot- or shoemaker, a saddler or a brass-founder could carry on his business, except in the coarsest and most ordinary productions of his trade and under the pressure of foreign competition. When the Constitution had been sent to the people for their decision upon its merits, while its fate still hung in the balance, the influence of the tradesmen and manufacturers of the country was generally exerted in its favor, and in more than one locality obtained for it an acceptance which might otherwise have been withheld." The result proved that they had not overestimated the benefits to be derived from a settled form of general government. Not the least valuable of these benefits was the possibility of obtaining official information with reference to important matters of state—information which before that time had been exceedingly difficult to procure. On the 15th of January, 1790, during the second session of the first Congress, the House of Representatives ordered, "That it be referred to the Secretary of the Treasury to prepare and report to this House a proper plan or plans, conformably to the recommendation of the President of the United States in his speech to both Houses of Congress, for the encouragement and promotion of such manufactories as will tend to render the United States independent of other countries for essential, particularly for military, supplies."

Hamilton's *Report on Manufactures.*—Alexander Hamilton, who was then the Secretary of the Treasury, applied his attention at as early a period as his other duties would permit to the subject of manufactures, and he prepared an elaborate report, which was communicated to the House (Dec. 5, 1791) nearly two years after the date of the above resolution. An exhaustive review of this paper would require far more space than we have to give to the whole subject, nor would it be advisable even if the requisite space were available, as several of Hamilton's leading positions have been assailed, and have even served as political issues. Its value for our purpose consists in the facts which it contains, but we shall note in passing an error which is, at the present day, somewhat amusing. In arguing against a duty on foreign cotton he says: "Not being, like hemp, a universal production of the country, *it affords less assurance of an adequate internal supply;* but the chief objection arises from the doubts which are entertained concerning the quality of the national cotton. It is alleged that the fibre of it is considerable shorter and weaker than that of some other places, and that it has been observed, as a general rule, that the nearer the place of growth to the equator, the better the quality of the cotton." The latest and best authority upon this subject says, "The United States exceed all other countries in the production of cotton, both as to

quantity and quality." The invention of the cotton-gin, within three years after the publication of this report, had so great an effect upon the cultivation and manufacture of cotton that its production and consumption increased with marvellous rapidity.

In the following extract from the report can be found a fair statement of the progress already made by this country up to the year 1791: "To all the arguments which are brought up to evince the impracticability of success in manufacturing establishments in the United States, it might have been a sufficient answer to have referred to the experience of what has been already done. It is certain that several important branches have grown up and flourished with a rapidity which surprises, affording an encouraging assurance of success in future attempts. Of these it may be proper to enumerate the most considerable: 1. *Of skins.*—Tanned and tawed leather, dressed skins, shoes, boots and slippers, harness and saddlery of all kinds, portmanteaus and trunks, leathern breeches, gloves, muffs and tippets, parchment and glue. 2. *Of iron.*—Bar and sheet-iron, steel, nail-rods and nails, implements of husbandry, stoves, pots and other household utensils, the steel and iron work of carriages and for ship-building, anchors, scale-beams and weights, various tools of artificers and arms of various kinds, though the manufacture of these last has of late diminished for want of demand. 3. *Of wood.*—Ships, cabinet-wares and turnery, wool and cotton cards, and other machinery for manufactures and husbandry, mathematical instruments, coopers' wares of every kind. 4. *Of flax and hemp.*—Cables, sail-cloth, cordage, twine and pack-thread. 5–17. *Miscellaneous.*—Bricks, coarse tiles and potters' wares; ardent spirits and malt liquors; writing- and printing-paper, sheathing and wrapping-paper, pasteboard, fullers' or press-papers and paper-hangings; hats of fur and wool and mixtures of both; women's stuff and silk shoes; refined sugars; oils of animals and seeds, soap, spermaceti and tallow-candles; copper and brass wires, particularly utensils for distillers, sugar refiners and brewers; andirons and other articles for household use; philosophical apparatus; tin-wares for most purposes of ordinary use; carriages of all kinds; snuff, chewing- and smoking-tobacco; starch and hair-powder; lampblack and other painters' colors; gunpowder. Besides manufactories of these articles, which are carried on as regular trades and have attained to a considerable degree of maturity, there is a vast scene of household manufacturing, which contributes more largely to the supply of the community than could be imagined without having made it an object of particular inquiry. This observation is the pleasing result of the investigation to which the subject of this report has led, and is applicable as well to the Southern as to the Middle and Northern States. Great quantities of coarse cloths, coatings, serges and flannels, linsey-woolseys, hosiery (of wool, cotton and thread), coarse fustians, jeans and muslins;

checked and striped cotton and linen goods; bed-ticks, coverlets and counterpanes; tow-linens, coarse shirtings, sheetings, towelling and table-linen, and various mixtures of wool and cotton and of cotton and flax, are made in the household way, and, in many instances, to an extent not only sufficient for the supply of the families in which they are made, but for sale, and even, in some cases, for exportation. It is computed in a number of districts that two-thirds, three-fourths, and even four-fifths, of all the clothing of the inhabitants are made by themselves." Other manufactures, equally well established, not being of equal importance, were omitted.

It is said that the publication of this report in England, in the following year, created so much alarm that meetings were called in many of the towns. It is also stated that the sum of fifty thousand pounds was subscribed at one of these meetings at Manchester, to be expended in overstocking the American market for the purpose of discouraging American manufactures. The report was certainly of such a nature as to give great hopes to the friends of home-production and to cause proportionate dismay to those abroad who wished American custom. "Leathern breeches" and "hair-powder" may not seem very important items, but the reader must remember that there was a greater demand for these articles in 1791 than at the present day. Even as late as the year 1810 the latter is mentioned in Tench Coxe's *Statement of the Arts and Manufactures of the United States* among the "manufactures of the United States most frequently exported in 1810."

Tench Coxe's *Statement*, etc.—The census of 1810 was very deficient in the returns made upon the subject of manufactures. An amendment to the act providing for this important matter made it "the duty of the marshals, secretaries and their assistants to take also, under the directions and instructions of the Secretary of the Treasury, an account of the several manufacturing establishments and manufactures within their several districts, territories and divisions, and to return the same to the Secretary of the Treasury." As no formula or instruction was given to secure uniformity and completeness, and as many persons were reluctant or unable to give correct information, the reports were necessarily very imperfect. Some branches were omitted altogether, and others were only partially represented. "Bark-mills were given for only one State; carriage-makers for three; blacksmiths' shops for five; hatters for four; tin and coppersmiths' shops for two, and these the least considerable in that branch. The number of tallow-candle factories in Massachusetts was not given, although that State was credited with nearly one-half of the product in that branch; and the same was the case with the morocco factories." Imperfect as was this "first systematic statement of American manufactures in detail," the results were interesting and encouraging. The "total value of the several branches, exclusive of doubtful articles," was given

as $127,694,602. This was no unfavorable exhibit for a country containing a population of 7,239,881. The "goods manufactured *by the loom*" amounted to $39,497,057; manufactures of hides and skins, $17,935,477; grain, fruit and case-liquors distilled and fermented, $16,528,207; manufactures of iron, $14,364,526. When the returns were first sent into the treasury department, in November, 1811, and were examined, at the request of the Committee of Commerce and Manufactures, by Mr. S. L. Mitchell, he confessed, after several attempts, his inability to arrange the materials in a compendious or useful form, "on account of their heterogeneous character." Congress, therefore, by a joint resolution approved March 19, directed "That a person be employed to prepare and report at the next session a digest of the census returns of manufactures;" and in accordance with this resolution the Secretary of the Treasury "committed the documents for that purpose to the charge of Mr. Tench Coxe," of Philadelphia. The *Statement* of Mr. Coxe proves that this arduous task could not have been placed in better hands. He had been Hamilton's Assistant-Secretary of the Treasury, and had been largely instrumental in obtaining materials for the report described in the preceding section. He had been one of the most zealous and energetic friends of home industry, and had contributed greatly by his writings and his personal exertions, both when in and when out of office, to the success already attained. His *Statement* shows upon every page that it is the work of a scholar and a man of business.

The interval of nearly twenty years which had elapsed since the publication of Hamilton's report had been productive of great results. Of cotton, for instance, concerning the success of which in this country Hamilton had such grave doubts, Coxe could say: "This raw material, *being the only redundant one* adapted to the manufacture of cloths for apparel and furniture *produced in the United States*, and being the most susceptible of labor-saving operations, the cotton branch will probably—nay, certainly—become *very soon* the most considerable of our manufactures. The cotton cloths for various uses manufactured in the United States, exceeded *in measurement*, in the year 1810, all other cloths—*i. e.*, all the cloths of flax, hemp, wool and silk—and the progress of the cotton branch is greater than that of any other; indeed, greater than that of all the others. Capitalists can most easily extend themselves in the cotton manufacture, *because the raw material is abundant* and capable of being conveniently and promptly increased." Of manufactures of hides and skins he says: "An improvement in making shoes [Bedford's patent] which saves four-fifths of the workmanship has been discovered. The shoes, boots and slippers manufactured in the United States in 1812 undoubtedly exceeded the value of all the foreign manufactures imported in the first year of the present government, which, by the actual return of November 30, 1791, were worth here only $15,295,638. Upon an examination of the number

of shoes, boots, slippers, saddles, bridles and other leathern goods, there will appear no reason to doubt that a value of leathern goods is made in the United States fully equal to that of half our exports of our own production and manufacture. It is not doubted that the leathern branch is at present equal in value to the same branch in any other country, in proportion to the population, if the same qualities of goods be estimated at the same prices. These facts in relation to the leathern branch are of peculiar importance, as it is generally a manufacture *by hand*, and not by machinery. They unanswerably prove our capacity in the *handicraft* branches, and render our capacity for machine operations free from doubt or question." Of iron he says: "The ore is very abundant and widely diffused. The extraction of the metal in its best condition, the conversion of it into steel and the manufacture of it into all the necessaries and conveniences belonging to this extensive and useful branch, are facilitated by the omnipresence of wood, and consequently of charcoal, and by rich and numerous veins of fossil coal, appearing in many places above the surface of the earth. These are present magazines and uncommonly strong symptoms of immense latent treasures of that fuel. The manufacturers of iron wares urgently call upon the owners of mines of that metal to open more of them, and to work the whole upon a far greater scale. Machinery to work up pig-iron and bars has been wonderfully invented, extended, diversified and multiplied in this country. Every year enlarges and diversifies the iron and steel manufactures. They are much too numerous for a detailed statement. Castings have been made in very increased quantities. These, for the use of manufacturing machinery alone, have been computed at 1000 tons per annum. The common blacksmiths' work, though of necessity very imperfectly given in the tables, is a branch of manufacture of great amount and utility. The blacksmiths' shops are in effect *primary schools of the arts.* The cut-nail machinery has been very beneficially introduced into some of these shops near the iron furnaces, ensuring the profitable employment of all the time not otherwise occupied. It is like the two spinning-wheels and the loom among the women in private families. Pennsylvania, the greatest nail-making State, produces at the rate of nine pounds of nails for each person in the State, which is at the rate of 65,000,000 of pounds for the whole white population of the United States, were equal attention paid to this gainful economy of time and labor. There are many blacksmiths and nail-makers among the people of African birth and descent in the Southern States. The iron branch has been very fruitful in inventions and labor-saving devices, both at home and abroad. In the moments when we feared difficulty and injury for the want of certain things the manufacture has been suddenly attained and established. This is remarkably the case as to *common steel, iron wire and edge-tools,* the manufactures of all which have greatly advanced since 1810

[Mr. Coxe writes in December, 1812]. Since we can make such contrasted goods as the wire and working-cards and cannon, small nails and anchors, screws and ploughshares, and as we have raised the price of bar-iron from 60 to 110 dollars since our Revolution, our capacity in the iron branch cannot be doubted."

Mr. Coxe was not satisfied with the sum-total given in the census returns. His estimate of the value of the manufactures of this country in 1810 was $172,762,676. In a revised edition of his Statement he says, under date of May 1, 1813: "In the course of the numerous and diversified operations occasioned by the deliberate execution of this digest and statement, constant and very close attention has been applied to those facts which have occurred throughout the Union since the autumn of the year 1810, from which the condition of the manufactures of the United States in the current year 1813 might be formed. A sincere and well-reflected final opinion is respectfully offered that the whole people of the United States will actually make, within this year, manufactured goods (exclusively of the doubtful) to the full value of $200,000,000."

The Census of 1820.—The schedules furnished to the census officers in 1820 were much more extensive than on former occasions, including nearly the same objects of inquiry as at present. The returns, however, were very defective, partly on account of the inadequate compensation allowed to the marshals and their assistants, and partly because many manufacturers were unable or unwilling to give the details of their business. A resolution of Congress, approved March 30, 1822, requested the Secretary of State "to transmit to the Congress the returns of manufacturing establishments and manufactures taken by the [census] marshals of the several States." The digest of the accounts on this subject was found to be so meagre and imperfect that the Secretary of State would, if possible, have withheld it from publication. The House of Representatives were strongly inclined to suppress the whole document, and they did go so far as to lay upon the table a resolution which provided for the distribution of the books. There had certainly been a decrease in the aggregate value. Business was embarrassed, and throughout the country machinery and fixed capital were lying idle, or were being employed at a slender profit, in the hope of a favorable change. The omission of all manufactures which were strictly domestic or household, a class which had formed a very important part of the former census and of Mr. Coxe's estimates, contributed to diminish still further the sum-total. The report based upon these returns was completed in September, 1824, and it contained a "Statement of the amount and value of dutiable articles manufactured annually in the United States and Territories; the amount of capital invested and the amount authorized and incorporated by State laws." The total "amount and value of dutiable articles," etc., was $32,271,984; capital

invested, $46,837,266; capital authorized and incorporated, $55,289,500. Further comment is unnecessary. The number of those who were engaged in agriculture was 2,070,646; persous engaged in manufactures, 349,506. The cotton annually spun amounted to 9,945,609 pounds, and the spindles numbered 250,572.

Manufactures in 1830.—Seven leading industries produced, in 1830, an aggregate value of $109,829,760. The value of woollen cloth mauufactured was $40,000,000, employmeut being afforded to 50,000 persons. The work of 2140 persons produced $3,000,000 worth of glassware, porcelain, etc. The number of cotton-mills was 795, with 1,246,503 spindles and 33,506 looms, producing annually 230,461,990 yards of cloth, consuming 77,757,316 pouuds of cotton aud employing 18,539 men, 38,927 women and 4691 children under 12 years of age; anuual value of product, $26,000,000. The quantity of cotton goods printed was estimated at 40,000,000 yards; about one-third of the goods manufactured were bleached, and the number of hand-weavers was not over 5000. The aunual value of the paper manufactured was $7,000,000. Hats and caps were manufactured to the value of $10,500,000, employing 18,000 laborers. The annual value of cabinet-ware manufactured was $10,000,000, furnishing occupation for 15,000 workmen. The iron-furnaces numbered 239, and produced, in 1830, 191,536 tons, converted afterward into 112,866 tons of bar-iron and 28,273 tons of castings, giving an aggregate value of $13,329,760, aud employing 29,254 hauds. The value of the leather manufacture was estimated at $35,000,000; and this, together with other branches not iucluded in the above figures, swell the total annual value of the mauufactures of this country to the comparatively respectable sum of $200,000,000.

Manufactures in 1840.—The census of 1840 gives returns of manufactures which are so meagre aud confused that it is difficult to determine therefrom the progress made during the decade immediately preceding. Progress had certainly been made, for even by these figures the values of such manufactures as the marshals were pleased to notice foot up a sum-total of $316,442,106. The invested capital was $267,726,579. The value of the cotton goods manufactured was $46,350,453; number of factories, 1240; number of spindles, 2,284,631; number of persons employed, 72,219. Value of leather manufactures, $33,134,403; number of tanneries, 8229, employing 26,018 persons; number of all other manufactories of leather, saddleries, etc., 17,136. Number of woollen manufactories, 1420; value of manufactured goods, $20,696,999; number of persons employed, 21,342. The productiou of iron amounted to 286,903 tons of cast-iron and 197,233 tons of bar-iron, from 804 furnaces and 795 bloomeries, forges and rolling-mills. The examination of these figures will show an improvement since the previous report, aud the following

anecdote will give an idea of the enterprise and energy displayed even at that early day by American manufacturers. On the 1st of February, 1840, a new style of mousseline-de-laines arrived in New York from France, and was offered by the importer at 14 cents per yard by the case. The agent of a Rhode Island calico-printing establishment forwarded a piece of these goods to Providence (Feb. 2), and on the 18th of February he had the same style of print, and of equal fabric, in New York, selling at 10 cents per yard. The manufacturer had only twelve days to engrave the new pattern on a copper cylinder, from which the engraving was raised on a steel cylinder, then hardened and made ready for impression, to discover by chemical experiments the ingredients of which the colors were composed and to have the cloth printed, dried and cased for the market. In several branches this country was already far advanced in the use of machinery. The stocking- or power-weaving loom was used here long before its introduction into England. Brass clocks were exported in the following year, and sold at first at an advance of 2000 per cent. on the cost, the invoice price being so low that the first consignments were seized in the British custom-house on the ground that they had been undervalued. Fortunately the owner was with them, and he satisfied the authorities that clocks could be made at a profit even when sold as low as $1.50 apiece. The following announcement, published at about this time, speaks for itself: "A manufactory near Darby, Conn., has a contrivance for sticking pins on paper which is quite marvellous. It takes in England sixty females to stick in one day ninety packs, consisting of 302,460 pins; the same operation is performed here in the same time by *one* woman. Her sole occupation is to pour them, a gallon at a time, into a hopper, whence they come out all neatly arranged upon their several papers. The mechanism by which the labor of fifty-nine persons is daily saved yet remains a mystery to all but the inventor; and no person except the single woman who attends to it is, upon any pretext whatever, allowed to enter the room where it operates."

Manufactures in 1850.—The seventh census, that for 1850, was the first in which any attempt was made to ascertain with accuracy the value of the productive industry of the country. No establishment was counted which did not produce at least $500 per year. The total number of such establishments was 123,025; total number of hands employed, 957,059; males, 731,137, females, 225,922; capital, $533,245,351; wages annually paid, $236,755,464; value of materials used, $555,123,822; value of products, $1,019,106,616. Of this amount seven of the States produced 68.87 per cent., divided as follows: New York, 23.31 per cent.; Massachusetts, 15.57; Pennsylvania, 15.21; Connecticut, 4.72; New Jersey, 3.91; Maryland, 3.24; Virginia, 2.91. This leaves only 31.13 per cent. to be produced by the remaining 29 States and Territories; and of these Maine,

Missouri, New Hampshire, Rhode Island and Kentucky had produced amounts varying from 2.41 per cent. for Missouri to 2.13 per cent. for Rhode Island. The only manufacture which produced more than one hundred millions of dollars annually was that of flour and meal; value of product, $136,056,736. From $50,000,000 to $100,000,000 there were three branches—viz., cotton, $65,501,687; lumber, $58,520,966; boots and shoes, $53,967,408. In the third class, that producing annually from $25,000,000 to $50,000,000, there were four branches—viz., Woollens, carding and fulling, $39,828,557; leather, tanning and currying, $37,702,-333; clothiers and tailors, $48,311,709; machinery, $27,998,344. "The manufactures," says Bishop, "were distributed generally among the various States; none, we believe, confined exclusively to any one, though Massachusetts made 85 per cent. of the bonnets and straw goods, 46 per cent. of the boots and shoes and one-third of the cottons; Connecticut made one-third of the hardware, including guns, and 40 per cent. of the india-rubber goods; Pennsylvania produced 50 per cent. of the hosiery, more than one-third of the iron and two-thirds of the perfumery; Delaware produced one-fourth of the gunpowder; Rhode Island, 40 per cent. of the calicoes; Vermont, the same proportion of the scales; North Carolina, 90 per cent. of the turpentine; Ohio, 60 per cent. of the lard oil; Missouri, three-fourths of the castor oil; and Wisconsin, one half of the lead." The statistics of pig-, cast- and wrought-iron were as follows: 1st. *Pig-iron.*—Number of establishments, 377; hands employed, 20,448; tons of ore used, 1,579,309; tons of pig-iron made, 564,755; value of entire product, $12,748,777, of which Pennsylvania produced 47.70 per cent.; Ohio, 9.85 per cent.; and Maryland, 8.03 per cent. 2d. *Cast-iron.*—Number of establishments, 1391; hands employed, 23,589; tons of castings made, 322,745; value of entire product, $25,108,155, of which New York, with 323 establishments, produced 23.58 per cent.; Pennsylvania, with 320 establishments, 21.32 per cent.; Ohio, with 183 establishments, 12.22 per cent., and Massachusetts, with 68 establishments, 8.90 per cent., making for these four States a product of 66.02 per cent., or nearly two-thirds of the whole amount. 3d. *Wrought-iron.*—Number of establishments, 422; hands employed, 13,257; tons of wrought-iron made, 278,044; value of entire product, $16,747,074, of which Pennsylvania, with 131 establishments, produced 53.16 per cent.; New York, with 60 establishments, produced 8.50 per cent.; Virginia, with 39 establishments, 7.49 per cent.; and Ohio, with 11 establishments, 6.43 per cent., making for these four States 75.58 per cent., or more than three-fourths of the whole amount.

Manufactures in 1860.—In 1860 there was a marked increase in very important particulars, the statistics appearing to show that the difference in the amount of invested capital, which had nearly doubled, was owing rather to the enlargement or rebuilding upon a larger scale of exist-

iug establishments, rather than to the construction of entirely new ones. The number of establishments was 140,433; hands employed, males, 1,040,349, females, 270,897; total, 1,311,246; invested capital, $1,009,855,715; wages annually paid, $378,878,966; value of materials used, $1,031,605,092; value of products, $1,885,861,676, an increase of *eighty-five* per cent. over the amount produced in 1850. Of the gross amount, New York produced 20.14 per cent., or more than one-fifth; Pennsylvania, 15.38 per cent., or nearly one-sixth; Massachusetts, 13.55 per cent., or nearly one-seventh; and Ohio, 6.39 per cent., or more than one-sixteenth; making for these four States 54.46 per cent., or more than one-half of the whole amount. *Cotton goods.*—There were 1091 establishments engaged in the manufacture of cotton goods; hands employed, males, 46,859, females, 75,169; total, 122,028; number of spindles, 5,235,727; value of raw material, $57,285,534; aunual cost of labor, $23,940,108; annual value of products, $115,681,774, of which New England produced 68.60 per cent.; the Middle States, 22.93 per cent.; the Southern States, 7.05 per cent.; and the Western States, 1.42 per cent. The five leading States were Massachusetts, New Hampshire, Pennsylvauia, Rhode Island aud New York, which produced, respectively, 33.72 per cent., 11.84 per cent., 11.80 per cent., 10.51 per cent., and 5.77 per cent., making iu all 73.74 per cent., or nearly three-fourths of the whole amount. Of these five States, Pennsylvania had made the most progress, her increase over the product of 1850 being 134 per cent., while the slightest advance had been made in New York, her iucrease during the same period having been 33 per cent. *Woollen goods.*—1260 establishments, employing 24,841 males and 16,519 females (total, 41,360), at au aunual cost for raw material of $36,586,887 and for labor of $9,808,254 (total, $46,395,141), produced 124,897,862 yards of cloth, 6,401,206 pounds of yarn, 616,400 shawls, 296,874 pairs of blankets, and other articles to the total value of $61,895,217. The four leading States were Massachusetts, Pennsylvania, Rhode Island and Counecticut, which produced, respectively, 31.75 per ceut., 13.23 per cent., 11.17 per cent. and 11.05 per cent., making for these States 67.20 per cent., or more than two-thirds of the whole product. *Pig-iron.*—The preliminary report of the superinteudent of the census, published in 1862, gives the number of tons of pig-iron as 884,474 and the value as $19,487,790. The full return, published in 1865, makes the number of tons 987,559 and the value $20,870,120, or $21.13 per ton, an increase over 1850 of 422,804 tons of pig-iron, and of nearly 64 per cent. in value. There were 286 establishments in 18 States; hands employed, 15,927; annual cost of labor, $4,545,430. The two leading States were Pennsylvania and Ohio, the former producing 58.74 per cent. of the quantity and 53.96 per cent. of the value, and the latter 10.92 per cent. of the quantity and 12.92 per cent. of the value, making for these two States 69.96 per cent. of the quantity and 66.88

per cent. of the total value. The increase of the product of Pennsylvania in 1860 over that of 1850 was 106.07 per cent., and the quantity produced by that State was 15,294 tons more than that of the whole country in 1850. Two hundred and fifty-six establishments, employing 19,262 hands, at an annual cost for labor of $6,514,258, produced 509,084 tons of bar, sheet and railroad iron, worth $31,888,507. The four leading States were Pennsylvania, Ohio, Massachusetts and New York. Pennsylvania produced 52.59 per cent. of the quantity and 47.43 per cent. of the value; Ohio, 7.99 per cent. of the quantity and 8.79 per cent. of the value; Massachusetts, 8.03 per cent. of the quantity and 8.26 per cent. of the value; and New York, 7.50 per cent. of the quantity and 7.06 per cent. of the value, making for these four States, 75.81 per cent. of the quantity and 71.54 per cent. of the value. *Cast-iron.*—1412 establishments, employing 26,029 hands, at an annual cost for labor of $9,968,346, produced manufactures of cast-iron worth $36,132,033. The five leading States were New York, 25.01 per cent.; Pennsylvania, 18.66 per cent.; Massachusetts, 8.75 per cent.; New Jersey, 8.18 per cent.; and Ohio, 7.70 per cent. of the whole amount, making for these five States 68.30 per cent., or more than two-thirds of the entire product. *Boots and shoes.*—12,487 establishments, employing 94,515 males and 28,514 females (total, 123,029), at an annual cost for raw material of $42,729,649 and for labor of $30,938,920, produced boots and shoes to the value of $91,891,498. The three leading States were Massachusetts, New York and Pennsylvania. Massachusetts, with only 1354 establishments, produced 53.09 per cent., or more than one-half of the total, while New York, with 2277 establishments, and Pennsylvania, with 2181 establishments, produced respectively 11.88 and 9.22 per cent. of the gross amount, making for these three States 74.19 per cent., or nearly three-fourths of the entire product. *Flour and meal.*—13,868 flouring- and grist-mills, employing 27,682 hands, at an annual cost for raw material of $208,497,309 and for labor of $8,721,391 (total, $217,-218,700), produced flour and meal to the value of $248,580,365. The six leading States were New York, producing 13.93 per cent. of the total value; Pennsylvania, 12.04 per cent.; Ohio, 9.96 per cent.; Illinois, 8.31 per cent.; Indiana, 6.97 per cent.; and Virginia producing 6.37 per cent., making for these six States a product of 57.58 per cent., or more than one-half of the total annual value of the product.

Manufactures in 1870.—The census of 1870 was taken with a thoroughness, a fidelity and an ability which made it far superior to any of its predecessors. The products of the fisheries and of coal- and copper-mining, which added to the sum-total of *manufactures* for 1860 the handsome sum of $37,889,264, were remanded to their proper place in a separate department in giving the returns of the ninth census, and still the increase in the annual value of the product of 1870 over that of the pre-

ceding census year was 124.43 per cent., or, in other words, during the decade between 1860 and 1870 *the annual value of the products of American manufactures had more than doubled!* Two hundred and fifty-two thousand one hundred and forty-eight establishments, with an invested capital of $2,118,208,769, employing 1,615,598 "males above 16," 323,770 "females above 15," and 114,628 "youth" (total, 2,053,996), at an annual cost for labor of $775,584,343 and for materials of $2,488,427,242 (total, $3,264,011,585), produced an annual value of $4,232,325,442. The four leading States were New York, producing 18.55 per cent. of this value; Pennsylvania, 16.79 per cent.; Massachusetts, 13.32 per cent.; and Ohio, which produced 6.37 per cent. of the total value, making for these four States (which contained 31.19 per cent., or less than one-third of the population of the country) a product of 55.03, or more than one-half of the total annual value of the manufactures. So full are the materials at hand, the number of industries returned being *three hundred and ninety*, that it is not possible to give more than the statistics of leading industries, in a very condensed form, but one which will be readily understood by the attentive reader of the foregoing pages.

Flouring- and grist-mill products.—Establishments, 22,573; hands employed, 58,448; annual cost of labor, $14,577,533; materials, 366,548,969 bushels of grain, worth $362,314,526, and $5,077,596 worth of mill supplies (total value, $367,392,122); value of products, $444,985,143; six leading States, New York, 13.31 per cent.; Pennsylvania, 11.11 per cent.; Illinois, 9.08 per cent.; Missouri, 7.15 per cent.; Ohio, 7.12 per cent.; Indiana, 5.70 per cent., making for these States 53.47 per cent., or more than one-half of the total product. Increase of total over 1860, 79.06 per cent. *Iron.*—3828 establishments, employing 145,306 hands, at an annual cost for labor of $76,993,148, produced manufactures of iron to the value of $346,952,694. *Pig-iron.*—Establishments, 386; hands employed, 27,554; annual cost of labor, $12,475,250, and of materials, $45,498,017 (total, $57,873,267); tons of pig-iron, 2,052,821; value of all products, $69,640,498; three leading States, Pennsylvania, 50.33 per cent. of the quantity and 46.86 per cent. of the value; Ohio, 14.97 per cent. of the quantity and 15.73 per cent. of the value; New York, 10.89 per cent. of the quantity and 11.37 per cent. of the value, making for these States 76.19 per cent. of the total quantity and 73.96 per cent. of the total value. Increase of totals over 1860, 107.86 per cent. in quantity and 234.33 per cent. in value. *Cast-iron.*—Establishments, 2654; hands employed, 51,305; annual cost of labor, $28,835,914, and of materials, including fuel, $48,222,550 (total, $77,058,464); products, 535,395 tons of miscellaneous castings, 107,791 tons of machine castings, 40,168 tons of agricultural castings, 27,845 tons of architectural castings, 1,285,177 stoves, 15,351 hot-air furnaces, 5450 cooking-ranges, 1,530,581 feet of railing, 473,108 car-wheels

and other products, the total value being $99,843,218. The four leading States in value of product were New York, 24.03 per cent.; Pennsylvania, 18.79 per cent.; Ohio, 10.55 per cent.; and Massachusetts, 7.05 per cent., making for these States 60.42 per cent., or more than three-fifths of the total product. Increase of total over 1860, 153.13 per cent. *Rolled iron.*—Establishments, 310; hands employed, 44,662; annual cost of labor, $25,192,635, and of materials, including fuel, $79,176,646 (total, $104,369,281); annual value of product, $120,311,158; leading States, Pennsylvania, 47.22 per cent.; New York, 11.74 per cent.; Ohio, 10.27 per cent.; Massachusetts, 5.05 per cent., making for these four States 74.28 per cent., or nearly three-fourths of the total product. Increase of total value over the combined values of forged-, rolled- and wrought-iron in 1860, 229.29 per cent. *Agricultural implements.*—Establishments, 2076; hands employed, 25,249; annual cost of labor, $12,151,504, and of materials, $21,473,925 (total, $33,625,429); annual value of products, $52,066,875; leading States, Ohio, 22.86 per cent.; New York, 22.75 per cent.; Indiana, 17.05 per cent.; Pennsylvania, 7.01 per cent. Total for these States, 69.67 per cent., or nearly seven-tenths of the whole product. Increase of total over that of 1860, 195.82 per cent. *Boots and shoes.*—Establishments, 3151; hands employed, 91,702; annual cost of labor, $42,504,444, and of materials, $80,502,718 (total, $121,007,162); products, 14,318,529 pairs of boots, worth $50,231,470, and 66,308,715 pairs of shoes, worth $93,846,206; total value of product, $146,704,055; leading States in value, Massachusetts, 59 per cent.; New York, 12.14 per cent.; Pennsylvania, 7.50 per cent., making for these States 78.64 per cent., or more than three-fourths of the whole product. Increase of total over that of 1860, 59.76 per cent. *Cotton goods.*—Establishments, 956; looms, 157,310; frame-spindles, 3,694,477; mule-spindles, 3,437,938 (total number of spindles, 7,132,415); hands employed, "males above 16," 42,790; "females above 15," 69,637; "youth," 22,942 (total, 135,369); annual cost of labor, $39,044,132, and of materials, $111,736,936 (total, $150,781,068); products, sheetings, shirtings and twilled goods, 478,204,513 yards; lawns and fine muslins, 34,533,462 yards; cloth, print, 489,250,053 yards; yarn, not woven, 30,301,087 pounds; spool-thread, 11,560,241 dozens; warps, 73,018,045 yards; bats, wicking and wadding, 11,118,127 pounds; table-cloths, quilts and counterpanes, 493,892; seamless bags, 2,767,060; cordage, lines and twines, 5,057,454 pounds; flannel, 8,390,050 yards; ginghams and checks, 39,275,244 yards; cassimeres, cottonades and jeans, 13,940,895 yards, and other products, the total value being $177,489,739; leading States in value, Massachusetts, 33.68 per cent.; Rhode Island, 12.42 per cent.; Pennsylvania, 9.85 per cent.; New Hampshire, 9.57 per cent.; Connecticut, 7.95 per cent.; Maine, 6.67 per cent.; New York, 6.29 per cent., making for these States 86.43 per cent., or more than four-fifths

of the whole product. Increase over the total of 1860, 50.96 per cent. *Leather, tanned.*—Establishments, 4237; hands employed, 20,784; annual cost of labor, $7,934,416, and of materials, $63,069,491 (total, $71,003,907); products, sides of leather, 17,577,404; number of skins, 9,794,148; value of all products, $86,169,883; leading States in value, New York, 31.43 per cent.; Pennsylvania, 23.01 per cent.; Massachusetts, 11.58 per cent., making for these States 66.02 per cent., or very nearly two-thirds of the whole product. *Leather, curried.*—Establishments, 3083; hands employed, 10,027; annual cost of labor, $4,154,114, and of materials, $43,565,593 (total, $47,719,707); value of product, $54,191,167; leading States in value, Massachusetts, 35.45 per cent.; Pennsylvania, 11.64 per cent.; Ohio, 10.02 per cent., making for these States 56.45 per cent., or more than one-half of the total product. Increase of combined product of tanned and curried leather over that of 1860, 108.53 per cent. *Sawed lumber.*—Establishments, 25,832; saws in use, 63,197; hands employed, 149,997; annual cost of labor, $40,009,162, and of materials, $103,343,430 (total, $143,352,592); products, laths, 1,295,091 thousand; lumber, 12,755,543 thousand feet; shingles, 3,265,516 thousand; staves, shooks, headings, etc., worth $10,473,681; value of all products, $210,159,327; leading States, Michigan, 15.20 per cent.; Pennsylvania, 13.78 per cent.; New York, 10.10 per cent.; Wisconsin, 7.39 per cent.; Indiana, 5.86 per cent.; Maine, 5.42 per cent., making for these States, 57.75 per cent., or more than one half of the product. Increase of total over that of 1860, 125.16 per cent. *Woollen goods.*—Establishments, 2891; cards, 8366 sets; daily capacity in carded wool, 857,392 pounds; broad looms, 14,039; narrow looms, 20,144; spindles, 1,845,496; hands employed, "males above 16," 42,728; "females above 15," 27,682; "youth," 9643 (total, 80,053); annual cost of labor, $26,877,575, and of materials, $96,432,601 (total, $123,310,176); products, blankets, 2,000,439 pairs; horse-blankets, 58,552; beavers, 261,208 yards; cloths, cassimeres and doeskins, 63,340,612 yards; felted cloth, 1,941,865 yards; coverlids, 226,744; flannels, 58,965,286 yards; jeans, 24,489,985 yards; kerseys, 5,506,902 yards; linseys, 14,130,274 yards; repellants, 2,663,767 yards; satinets, 14,072,559 yards; shawls, 2,312,761; tweeds and twills, 2,853,458 yards; yarn, 14,156,237 pounds, and other products, the total value being $155,405,308. Leading States, Massachusetts, 25.42 per cent.; Pennsylvania, 17.74 per cent.; Connecticut, 11.17 per cent.; New York, 9.26 per cent.; Rhode Island, 8.14 per cent., making for these States 71.74 per cent., or nearly three-fourths of the whole product. Increase of total over that of 1860, 156.08 per cent. *Cigars.*—Establishments, 4631; hands employed, 26,047; annual cost of labor, $9,098,709, and of materials, $12,500,530 (total, $21,599,239); products, 935,868,000 cigars and other products, the total value being $33,373,685. Leading States in value, New York, 27.76 per cent.; Pennsylvania, 15.84 per cent.;

Ohio, 8.29 per cent.; Missouri, 6.25 per cent., making for these States 58.14 per cent., or more than one-half of the whole product. Increase of total over that of 1860, 268.01 per cent. *Chewing- and smoking-tobacco and snuff.*—Establishments, 573; hands employed, 21,799; annual cost of labor, $5,216,633, and of materials, $21,609,237 (total, $26,825,870); products, chewing-tobacco, 66,705,709 pounds; smoking-tobacco, 24,762,211 pounds; snuff, 2,867,191 pounds; value of all products, $38,388,359; leading States in value, New York, 25.26 per cent.; Missouri, 21.70 per cent.; Virginia, 18.06 per cent.; Illiuois, 7.70 per cent.; Ohio, 6.62 per cent., making for these States 79.34 per cent., or nearly four-fifths of the whole product. Increase of total over that of 1860, 75.93 per cent.

We give, in conclusion, a few percentages of increase iu total value of manufactures during the decade between 1860 and 1870, calculated for separate States: New York, 107.24 per ceut.; Pennsylvania, 145.37 per cent.; Massachusetts, 116.79 per cent.; Ohio, 122.45 per ceut.; Rhode Island, 173.67 per cent.; Indiana, 153.75 per cent.; Michigan, 265.90 per cent.; Illinois, 275.46 per cent.; Missouri, 394.10 per cent. It will be scen that greater proportionate progress was made in the Western States than in those portions of the country which are near the Atlantic coast.

Sir Morton Peto, whose remarks were based upon the returns given in the census of 1860, says: "Many branches of manufacturing industry in America are, at the present time, very little developed. The manufactures of which they chiefly speak are those of agricultural implements and sewing-machines [see AMERICAN INVENTIONS], of both of which they are justly proud; of cotton and woollen goods (in the production of which they have been making very rapid advances); of furniture, clocks, jewelry and musical instruments, with which they now mainly supply themselves; and clothing and boots and shoes, which a quarter of a century ago were almost all imported, and which are now almost entirely home-made." An examination of the figures which we have given will show a marked advance in many other branches, to which Sir Morton does not refer, as their statistics would bear heavily against his pet theory that America is "essentially agricultural, and by no means essentially commercial or manufacturiug." To do him justice, however, he could not be expected to realize the advance made in many of the "very little developed" branches during the decade in which he was writing (1860–1870)—an advance which surprised even the most sanguine of our own citizens. Even since the year 1870 progress has been made in some branches (in the production of cutlery, for instauce), which has made itself felt in advance of published statistics, and the extent of which may be estimated by the anxiety exhibited by those in foreign countries who are engaged in these manufactures and by the marked decrease in the quantity and value of the products of these industries, which are imported into this country.

THE SIGNAL SERVICE BUREAU.

ON the 9th of February, 1870, a resolution of Congress was approved by the President which provided "that the Secretary of War be, and he hereby is, authorized and required to provide for taking meteorological observations at the military stations in the interior of the continent and at other points in the States and Territories of the United States, and for giving notice on the Northern lakes and on the sea-coast, by magnetic telegraph and marine signals, of the approach and force of storms." The adoption of this resolution marks an era in the history of American science, being a striking proof of the advance made in this country in the appreciation of the efforts of those pioneers who once incurred ridicule by their persevering efforts to learn and to expound "the law of storms." For many years a number of men who loved science for its own sake took observations day after day, noting the state of thermometer and barometer, the direction and speed of the wind, the nature of the clouds, etc., and carefully kept the records for transmission to the Smithsonian Institution at Washington, to the Franklin Institute of Philadelphia, or to some other similar organization or institution under the auspicies of which their labors had been undertaken. It must be candidly confessed that these volunteer meteorologists did not receive the credit which they deserved. Too frequently they were called in derision "clerks of the weather," and were considered harmless enthusiasts who might as well amuse themselves in that way as in any other. We can remember the time when the Smithsonian Institution was ridiculed by some would-be scientists as a place established to give the inhabitants of the city of Washington news concerning approaching changes of the weather. The "clerks of the weather" disregarded this ridicule and steadily worked out problem after problem, until the knowledge of the meteorology of this country was placed upon so firm a basis that Congress was not merely justified in passing the above resolution, but was obliged to do so in order to meet the demands of an enlightened public opinion. It must be admitted, however, that this appreciation of the importance of the measure in question was not universal, and that the new system, like all reforms, was obliged to work its way gradually into public favor. At one place the opposition even went so far as an expression of hostility, of which a more specific account will be hereafter given. The

Chambers of Commerce and the Boards of Trade of the Atlantic and Western cities took great interest in the matter, and many of them appointed "meteorological committees" to further by every means in their power the establishment and continuance of signal stations in their respective localities.

The carrying out of the objects of the above resolution was entrusted to Brevet Brigadier-General Albert J. Myer, the chief signal officer of the army, whom the newspapers, with their usual facility in constructing nicknames, speedily honored with the *sobriquet* of "Old Probabilities." He asked for very small appropriations—$15,000 for the fiscal year ending June 30, 1870, and $20,000 for the following fiscal year, ending June 30, 1871. Such economy would not have been possible if the observations (or nearly all of them) had not been conducted by army officers. The organization of the corps of observers was not an easy task. No similar body of men had ever been raised, organized and equipped. Those who were to perform the actual work were put on duty, according to Captain Howgate, "after a hurried course of study, and without, in many cases, any previous knowledge of even ordinary military duty." The energy of those in charge overcame every obstacle. Thermometers, barometers, hygrometers (for measuring the moisture of the atmosphere), rain gauges and anemometers, or wind gauges, were speedily procured, army correspondents were selected and installed, and on Nov. 1, 1870, at 7.35 A. M., the first systematized synchronous meteoric reports ever taken in the United States were read from the instruments by the observer-sergeants of the Signal Service at twenty-four stations, and placed upon the telegraphic wires for transmission. With the delivery of these reports at Washington and at the other cities and ports to which it had been arranged that they should be sent commenced the practical working of the portion of the Signal Service then known as the "Division of Telegrams and Reports for the Benefit of Commerce," to which title the words "and Agriculture" have since been added. The bulletin published in Washington on this day is found in the *Report of the Chief Signal Officer for* 1871 (page 64), and it is interesting as one of the first results of a service "which has no holidays and can know no rest; the labors of which continue equally throughout every night as well as every day, and to the vigilance of which has been entrusted responsibility extending not only to property, but possibly to the life of any citizen of the United States." As soon as the working of the organization thus tested had proved a success, and there was no longer any doubt that the reports would be correctly and promptly received, it became a duty to provide in some way for giving notice of the approach of storms which the reports often heralded. The need of this duty was especially urgent upon the lakes, along which the first storm-warning was telegraphed and bulletined on the 8th of November, 1870.

Upon the 2d of August, 1871, a pamphlet was issued from the chief signal office at Washington which was designed "to put it in the power of the largest number to make use of and to profit by the labors of this office; to enable them to test and to avail themselves of some of the laws and generalizations by which meteorologists are guided; and to afford the means by which at once to supplement, judge of and aid the work of the department." This pamphlet contains, besides valuable scientific information, the following important note: "In the weather synopses and probabilities emanating from the signal office, different parts of the country are thus designated: Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island are alluded to as the *New England States* or the *North-east*, or simply as the *Eastern States;* New York, New Jersey, Pennsylvania, Maryland, the District of Columbia and Virginia as the *Middle States*, or sometimes as the *Middle Atlantic States;* North Carolina, South Carolina, Georgia and Northern and Eastern Florida as the *South Atlantic States;* Western Florida, Alabama, Mississippi, Louisiana and Texas as the *Gulf States.* Sometimes the Gulf States, the South Atlantic, Virginia, Tennessee, Kentucky and Arkansas are grouped together as the *Southern States. The Lower Lakes*, when used, means Lakes Erie and Ontario. *The Upper Lakes* are Lakes Superior, Huron and Michigan. *The North-west* means the country lying between the Mississippi and Missouri Rivers. *The South-west* means Texas, Indian Territory and New Mexico. *Pacific Coast* or *Pacific States* includes California, Oregon and Washington Territory. The *Ohio Valley* includes the belt of country about two hundred miles broad extending from Pittsburg to Cairo. The *Mississippi Valley* includes a belt of about the same width extending from Vicksburg to Davenport. The extensions from Missouri to Ohio, etc., refer to areas reaching to and including the central portions of the States named. Thus a report, 'Westerly winds extending from Iowa to Pennsylvania,' would convey that those winds would be felt in the interior of those States as well as over the territory lying between them of the respective States. In *the coasts*, etc., is included the land between the coasts and the parallel range of coast hills or mountains. In Texas, Louisiana and Northern Florida a belt of land extending a hundred miles inward would be included. Winds are said to blow from the north-east when they are generally included in the quadrant from north to east, etc., and similarly for other directions."

The issue of synopses and probabilities was commenced February 19, 1871, and has been made thrice daily since that date. The synopses consist of a synoptic view of the meteoric condition of the United States, as had from the data received at each regular report. The probabilities are the deductions made by the office from the data in its possession at the time of each report as to meteoric conditions probably to be for the eight

hours then next ensuing. Copies of these synopses and probabilities are furnished at the moment of their issue to the different press associations of the United States. During the first six months after the publication of probabilities was commenced, daily experiments were made in the preparation of detailed synopses, upon which were indicated the times and places at which signals of caution or of safety ought to be shown. The results indicated that the office would be justified in displaying cautionary signals at various ports on the Atlantic coast, the gulf coast and the northern lakes. The display of cautionary signals was therefore ordered to be made at the designated stations of the observer-sergeants on and after Wednesday, October 23, 1871, whenever such display should, in view of the meteoric information in possession of the central office, be deemed necessary. Each signal must be ordered by telegraph from the chief signal office, and remains displayed until it is ordered down by the same authority, unless telegraphic communication with the central office is interrupted and continues so for some hours after the storm has passed, in which case the signal is lowered when the danger is over. Observers are required, however, to exercise extreme caution in this respect, in order not to mistake the customary lull in the centre of a storm for an indication that it has passed over, nor are they under any circumstances permitted to hoist or display cautionary signals without orders from headquarters. The signal of caution—a red flag with a black square in the centre by day and a red light by night—displayed on the office of the observer and at other prominent places throughout any city, signifies—1. That from the information had at the central office in Washington, a probability of stormy or dangerous weather has been deduced for the port or place at which the cautionary signal is displayed, or in that vicinity. 2. That the danger appears to be so great as to demand precaution on the part of navigators and others interested, such as an examination of vessels or other structures likely to be endangered by a storm, the inspection of crews, rigging, etc., and general preparation for rough weather. 3. It calls for frequent examination of local barometers and other instruments, and the study of local signs of the weather or clouds, etc. By this means those who are expert may often be confirmed as to the need of the precaution to which the cautionary signal calls attention, or may determine that the danger is overestimated or past. During the year ending Sept. 30, 1871, applications were made by Boards of Trade of cities in the river valleys to have added to the telegraphed and bulletined reports of the Signal Service a telegraphed report of the rise or fall of the greater rivers. An examination of this subject showed that by the addition of two words per day to a single one of the cipher reports already had from the river stations the requisite reports might be given, and that the expense of the necessary apparatus would be trivial. It was therefore proposed to embody this infor-

mation with the reports as having a direct connection with the meteoric information which they already contained. No definite form of water-gauge was adopted, as it is difficult to get one at a reasonable cost which would be adapted to the essentially different circumstances under which it must be used at the several river stations. The following simple form of gauge is recommended for localities where it is difficult to get one of more scientific construction, or to be used as a temporary substitute for the latter in case of emergency: "Take a pine scantling 1¼ to 1½ inches in thickness and from 5 to 6 inches in breadth, the length varying with the depth of water where it is to be used. Having planed the scantling smooth, give it a heavy coat of white zinc paint, and after the paint is dry divide the scantling into feet and tenths of feet with a rule and lead-pencil. With a small brush paint the tenths of feet black, except the centre and initial ones, which will be painted red and in heavier lines than the intermediate ones. Indicate each foot with its proper number in plain figures on the white surface just above its mark. Having thus marked the staff up to a sufficient height to ensure getting the maximum high water, select a pile or other stationary object in some portion of the levee or wharf where the staff will be secure from being damaged or defaced by coming into contact with vessels, and where it will not be left dry by the tide. Lower the staff into the water, taking care to keep it in a vertical position until it touches the bed of the river, and then secure it to the pile by spikes. It would be well in selecting a place for fixing the staff to take the angle of a pier, and having fastened a smooth piece of scantling about the size of the staff on the side of the pile secure the staff to this. When the gauge is in an exposed place liable to be washed by the waves, advantage should be taken of the first low water to secure it from being displaced by driving in additional spikes or by lashing it with strong cords to the pile. Care must be taken in reading the staff when the water is rough to get the mean of the rise and fall of the waves. It would be well after securing the staff to determine some point of reference, so that in case it should be destroyed another one could be put up at the same height. This may be done by taking and marking any given point in the vicinity, a pile or a rock, at any given height of the water. Thus by driving a spike or drilling a hole, and recording the height of the water as read from the staff at the time, you have a 'bench mark' or point of reference by which to set up another staff. It would be necessary in doing this to make a sketch of the place, giving the location of the staff and of the point of reference, noting the local names of the surrounding points, so that any other person could find the place from the description." We have given so much space for the transcription of these directions with the design of benefiting those who wish to become amateur observers or to whom the measurement of the rise and fall of a stream may be a matter of curiosity or of interest.

Before proceeding to further details with reference to the observations taken, it would be well to state who the observers are and what course of preparation is required for their very important duties. They are all sergeants of the United States army, not taken at random, but selected with great care; and in order to secure the very best of material, arrangements have been made whereby those who wish to become observer-sergeants can enlist with that design, with the certainty of promotion to the charge of a station if they pass the requisite examinations and give evidence of the requisite steadiness and ability. After an extended course of study and of special training at Fort Whipple, Va., in which they become thoroughly conversant with Loomis' *Treatise on Meteorology*, Buchan's *Handy Book*, Piddington's *Horn Book*, Espy's *Philosophy of Storms*, Fitzroy's *Weather Book*, Ley's *Laws of the Winds* and kindred works, they must pass two examinations, conducted by an army board consisting of leading officers, at the central office. The first examination is only preliminary, and can be passed by any one who is a good arithmetician, who is able to write good English, and who is well acquainted with geography, especially with the geography of the United States. Before passing the final examination the candidate, in many cases, has served as an assistant on duty at a station. He is required when examined to work out a variety of practical problems in instrumental meteorology, to display a full acquaintance with the instruments, and to prove that he is thoroughly conversant with the laws of storms and the general principles of his science. The observers are also trained at Fort Whipple in all the duties and drills of the signal corps of the army, so that in time of war they will be ready for field duty. Full and minute directions are given to observers who are sent to establish new stations, and all stations are liable to be inspected at any time by an officer from headquarters, who examines all arrangements made, the shelter for the instruments, the office-records of the observer, etc., and ascertains as far as possible how the observer-sergeant has conducted himself in the performance of his duties, and in his official, and even his personal, intercourse with the public, it being of great importance to the service that those who are in charge of stations should gain the respect and good-will of the communities in which they are located. If the conduct of the observer has not been satisfactory, he may be assigned to some less important station or reduced to the ranks, or even discharged "for the benefit of the service," as his case may require. It is not often, however, that such stringent measures are required. There is an *esprit de corps* among those who have been selected for these honorable and important positions which leads them by every means in their power to labor for the benefit of a service which has daily become better, more efficient, more worthy of being a pride and honor to our common country and more deserving of consideration by foreign nations, as an evidence of which we note with great pleasure that a "letter of distinction"

was awarded to the Signal Service Bureau of the United States by the geographical congress which was in session in Paris in August, 1875.

Each station is, or ought to be, and eventually will be, supplied with the following instruments: two standard barometers (Green's), two standard thermometers (Green's), one standard hygrometer (Glaisher's model), one maximum thermometer, one minimum thermometer, one anemometer (Robinson's) for measuring the velocity of the wind, one anemoscope or wind-vane to indicate the direction of the wind, one rain gauge. Seven observations are taken daily, three for transmission by telegraph to the central office and four others for transmission weekly by mail. The instruments are read in the following order: 1. barometer, 2. thermometer, 3. hygrometer, 4. anemometer, 5. anemoscope, 6. rain gauge. The readings of the instruments are entered in a book *in lead-pencil*, and they indicate the atmospheric pressure, the temperature, the relative humidity of the atmosphere, the velocity and direction of the wind and the amount of rainfall. The observer is also required to note the "state of the weather," whether cloudy, foggy or fair, etc., the amount, kind and direction of the upper clouds and the amount and kind of the lower clouds. An admirably constructed verbal cipher, one word of which frequently conveys two separate pieces of information, permits great condensation in the telegraphic reports. Each regular report consists of *ten* words, arranged when written off for transmission in two lines of *five* words each. In the first line the first word gives the name of the station, the second the date and time of the report, the third the height of the mercury in the barometer, the fourth the temperature, and the fifth the relative humidity. In the second line the first word gives the state of the weather and the direction of the wind, the second the velocity of the wind, the third the amount, kind and direction of the upper clouds (provided, of course, that they are in sight; if they are *hidden*, this word is used), the fourth the amount and kind of the lower clouds (no amount, of course, being given if the atmosphere is hazy, foggy or smoky), the fifth the rainfall since last report. The following is an example of a regular report:

Mount; Cake; Florida; Throng; Beast;
Caspian; Relic; Hidden; Three; Abase.

Translation: Mount (station), Mount Washington; Cake (date and time), 2d, morning report; Florida (barometer), 30.07; Throng (thermometer), 19°; Beast (humidity), .35; Caspian (state of the weather and direction of wind), cloudy, north-west; Relic (velocity of wind), 47 miles; Hidden (upper clouds), hidden; Three (lower clouds), foggy; Abase (rainfall), .01. For a river report a sixth word is added to each line, the last word in the first line being "River" if the rise or fall has not exceeded eight feet, and the last word in the second line indicating the change in the past twenty-four hours. If this change has exceeded eight

feet, a word indicating the number of feet takes the place of "River," and the lower word gives the odd inches. Thus "River" ending the first line and "Hang" ending the second indicate a rise of 9 inches. "Obey" ending the first line and "Hamlet" ending the second indicate a rise of 10 feet and 7 inches. The amount of condensation secured by this system can be judged by the fact that during the eleven months ending September 30, 1871, the number of words of weather reports received at Washington was 561,929, while during the *year* ending September 30, 1874, with the number of stations sending telegraphic reports largely increased and daily river reports added, the number of words of weather reports had risen to only 941,860, this system of cipher words having been elaborated and introduced. The hours at which the reports are to be transmitted are given to the observers in the *local* time of their respective stations. They are required to be at the telegraph-office with the reports carefully and plainly written out *in duplicate* ten minutes before the hours named, in order that the operator may be notified in time to prepare for their transmission, and must obtain the signature of the operator *to both copies of each report*, with the exact time of receipt by him. Should the operator make a mistake in transmission, the observer is freed from blame by his duplicate *fac simile* copy (it having been taken on manifold paper at one writing), which shows exactly what was handed to the operator. Great accuracy is thereby secured in telegraphing observations. At each station an observation is taken at 12 M., Washington mean time; and if a change equal to or greater than fifteen hundredths of an inch has taken place since the regular morning telegraphic observation, the fact is immediately reported by telegraph to the central office, with the direction of the wind, the state of the weather and the velocity of the wind in miles per hour, the whole being sent in the same order as that given for the regular report and in the regular cipher words. At all of the leading stations reports are received from the other principal stations, and at many of them weather-maps are printed during the night, ready for posting up or distribution during the morning. At some of the stations weather-maps are made out in manifold—*i. e.*, upon translucent paper, with carbon paper between every two sheets—so that several can be made out at the same time. This map shows the direction of the wind, the state of the weather, the height of the barometer, the height of the thermometer and the velocity of the wind at each station. The direction of the wind is indicated by an arrow which always flies "*with* the wind, and not *toward* it like a vane." The state of the weather is shown by a disk which can be readily changed, and the remaining information is given by figures printed or stamped near the arrow. Observers have strict orders never to allow imperfect or illegible maps to leave the office. To ensure accuracy the printed maps before being issued are carefully compared with the reports received; and if

errors are found they are corrected on the map if the corrections can be made without disfiguring it and without rendering it illegible. If they cannot be so corrected, there are standing orders to destroy the whole edition, "as it is better not to issue any map than one which is imperfect." "Farmers' bulletins" are also issued at some of the principal stations and mailed to post-offices which can be reached within a reasonable time. An idea of the number of these publications may be gathered from the following reports for the stations in several cities for the year ending September 30, 1874: Philadelphia—number of maps issued, 58,580; number of farmers' bulletins, 89,900; total number of publications, including reports given to the newspapers, 162,428. Boston—number of farmers' bulletins, 292,428; number of maps, 9572; total number of publications, 312,757. New York—farmers' bulletins, 378,900; maps, 87,294; total number of publications, 474,214. St. Louis—farmers' bulletins, 413,342; maps, 53,371; total number of publications, 483,461. Chicago—maps, 27,420; farmers' bulletins, 539,187; total number of publications, 576,576. The number of maps issued at all of the stations during the year named was 470,622; number of farmers' bulletins, 3,491,046; number of regular bulletins, 281,066; total number of publications, including press reports, 4,494,320. The correspondence of the central office is very large. The aggregate for the year ending September 30, 1874, was 529,928 letters (52,396 sent and 477,562 received), exclusive of publications and telegrams. The number of stations was 102, exclusive of British American and West Indian stations from which reports were received. The British American stations exchange reports with the Signal Service of the United States. West Indian stations have been established at Havana (Cuba), Kingston (Jamaica), Santiago de Cuba, Saint Thomas, Point-a-Pitre (Guadaloupe) and Bridgetown (Barbadoes). The plan kept steadily in view in the occupation of stations is "to so arrange that each might from its point of observation give notice of meteoric changes, and warn against unusual disturbances for its particular section, while all should be so placed in a series of lines and in such relations each to the other that the reports of any one and the contiguous stations received at the other stations as they passed by telegraph to the central office at Washington should of themselves give notice of marked approaching meteoric changes. The reports of all, concentrated and charted at the central office, are intended to enable the extent, movement and course of the disturbance to be defined and observed from report to report, and warnings to be issued by publications or by signals at any time for the benefit of all. The stations established in the West Indies are extended far southward and eastward to Barbadoes and the Windward Islands; thence the long line of guardian points runs with few breaks (and these each month decreasing) past the capes of Florida, and following the Atlantic coast stretches to the distant north-east, at Farther

Point and Halifax. Near the southern extremity of this line the experience of meteorists has located the frequent origin of cyclones which sometimes sweep in a single course through the islands and over the whole eastern portion of the United States in the vicinity of the sea [see PHYSICAL GEOGRAPHY, page 177]. Near the northern extremity the indications of the greater number of such storms pass from the study charts of this office, and are lost over the Atlantic." To give an idea of the rapidity with which the "probabilities" are thought out, we need only state that the observations for the principal publication of probabilities, or at least the one most read, are taken at 11 P. M., Washington mean time, and that within two hours the reports are telegraphed and charted on a weather map, so that the officer in charge (one of the leading assistant signal officers) can prepare and furnish to the press by 1 A. M. the synopses and probabilities. The improvement in the correctness of these deductions is shown by the fact that up to November 1, 1871, an average of 69 per cent. was verified; that from Nov. 1, 1871, to October 1, 1872, 76.8 per cent. of these forecasts proved to be correct; while a careful analysis of the statements of the chief signal office made during the year ending September 30, 1874, and a comparison with the meteoric conditions occurring within the twenty-four hours and within the district to which each statement had reference, gave an average of *eighty-four and four-tenths per cent.* as verified. Every year the Signal Service deservedly rises in the public estimation, nor is it likely that any one of the inspecting officers will ever again find in the most remote district the lack of appreciation of the labors of an observer which was shown in 1871 in Lake City, Florida. The *Report* says: "Indignation meetings have been held and resolutions passed to drive the observer from the town because it is believed that his instruments caused the unexampled bad weather and the large amount of rain which has fallen here lately." The station at Lake City still exists, and it is not probable that any observer will hereafter run the risk of martyrdom or of banishment in a service which has been the means of saving many lives, and property worth many millions of dollars, by its warning, which is of equal benefit to the agriculturist in his field and to the *savan* in his study; which takes note of the wind that still (as a daily inspection of the arrows on a weather map would speedily convince the most skeptical) "bloweth where it listeth," of heat and cold, of frost and dew; and which to herald the approach of a storm makes use of the subtle fluid which is frequently the storm's most deadly weapon.

RAILROADS OF THE UNITED STATES.

THE first railroad in the United States was that constructed in Quincy for the purpose of transporting granite from the quarry at that place. It extended from the quarry to the Nepouset River, a distance of three miles. The ties or sleepers were of granite, 7½ feet long, and laid 8 feet apart. It was a single-track road, with the rails laid 5 feet apart. The rails were of pine a foot deep, covered with oak, the latter being overlaid with thin plates of wrought-iron. This road was partially built in 1826, and completed in 1827. When it was first in use, the passage from the quarry to the landing of a car carrying ten tons and drawn by a single horse was performed in an hour. The second was the Mauch Chunk road in Pennsylvania, better known by the name of the "Switchback," which now forms a part of it. This road was commenced and finished during the first five months of 1827. It extended from the coal-mines near Mauch Chunk, along the side of the mountain down an inclined plane with a varying grade, a distance of nine miles, with four and a half miles more of turn-offs or "sidings" and branches. A portion of the original route has been abandoned, a better course having been found; but the descent is still in some places more than 200 feet to the mile. The cars were drawn up to the top at first by mules, with which one of the cars was filled, when the train descended "by gravity." Stationary engines are now used. During this same year the Carbondale and Honesdale Railroad was opened, extending from the Delaware and Hudson Canal to the coal mines of that company. By the end of 1830 fourteen miles of the Baltimore and Ohio Railroad were completed, but the tables of Poor's *Manual of the Railroads of the United States* give 23 as the total number of miles in operation in that year. The first locomotive used in this country was one built by the famous George Stephenson, and imported into this country by the Delaware and Hudson Canal Company in 1829. The Hudson and Mohawk Railroad, from Albany to Schenectady, was begun in 1830. It was a double-track road, extending about sixteen miles, and was built at a cost of nearly $700,000. In October, 1831, the average daily number of passengers was stated at 387, and a locomotive with a load of eight tons had travelled on it at the rate of thirty miles an hour. The Camden and Amboy Railroad was begun in 1831. Fourteen miles of it were completed

in 1832, and the remainder was finished by the end of 1834. The following statement with reference to this road was published in 1835: "It is sixty-one miles in length, passing through a very level country. Being designed for steam locomotives, it is to be constructed in the most improved and substantial manner, though at present wooden rails are laid over a great portion of the line in order that the embankments may be consolidated before laying the permanent track." The most improved and substantial manner of that day is thus described: "Longitudinal rails were pinned down to wooden or stone cross-ties, which were imbedded in the ground, and upon these [wooden] rails were fastened by spikes flat bars of iron ½ or ⅝ of an inch thick, and from 2½ to 4½ inches wide. The heads of the spikes were countersunk in the iron. This method, which was generally adopted on early American railroads from considerations of economy, and with the view of extending the lines to the utmost limit of the capital provided, was soon found to involve great danger and consequent expense. The ends of the rails became loose, and starting up were occasionally caught by the wheels and thrust up through the bottom of the cars. It was found necessary to run the trains with great caution on the roads thus constructed, and the passenger traffic was seriously diverted from those lines that had acquired a notoriety for 'snake-heads,'" as the rails were called which, having become loosened, sprung up and penetrated a car. In spite of such drawbacks, the American people favored railroad construction from the first, and furnished every possible facility for it. There were no such highways in this country as those of England and Wales, upon which the Holyhead mail was able to traverse the whole road from London to one of the most distant parts of North Wales at the rate of twelve or thirteen miles an hour. The roads of America were mere sloughs or "corduroy roads," which were ill adapted for rapid travel. In such a country the most rudely constructed road on which a locomotive could be worked was comparatively luxurious; and an English gentleman who travelled over some of the earliest railways in America, soon after they were opened for passenger traffic, told Sir Morton Peto that he thought them, in those days, very nearly perfect. In England those who attempted to introduce railways "had to go through all the difficulties of land-owners' oppositions and parliamentary conflicts, which immensely burdened the cost of every line of railroad that was permitted to be constructed for the accommodation of the public and the advantage of the locality it penetrated. It will be remembered that Oxford, Northampton and other large towns forced the railways to take routes at a distance from them, and now, seeing their former error (in some cases too late), have been trying in vain to remedy the very lamentable results of their former mistake. Here we have had to go through all the difficult and expensive ordeals of parliamentary notices, oppositions, contentions, claims for resi-

dentiary damages, severances of lands and every variety of litigation that could add to the expense of constituting a railroad. In America, on the contrary, every one in the country has felt from the first, what every Englishman has experienced at last, that the construction of a railroad through his property, or to the city, town or village which he inhabited, was a source of prosperity and wealth not only to the district in which he resided, but to himself personally. In England, in fact, we have treated railroads as things to be discouraged, whilst in America they have regarded them as sources of wealth and of convenience, and have given every encouragement and facility for their extension." Before commenting upon these remarks of Sir Morton Peto, we offer for the reader's inspection a

Statement showing the Number of Miles of Railroad constructed each Year in the United States, from 1830 *to* 1874, *inclusive* (from *Poor's Manual*).

Year.	Miles in Operation.	Annual Increase of Mileage.	Year.	Miles in Operation.	Annual Increase of Mileage.
1830	23	...	1853	15,360	2452
1831	95	72	1854	16,720	1360
1832	229	134	1855	18,374	1654
1833	380	151	1856	22,016	3642
1834	633	253	1857	24,503	2487
1835	1,098	465	1858	26,968	2465
1836	1,273	175	1859	28,789	1821
1837	1,497	224	1860	30,635	1846
1838	1,913	416	1861	31,286	651
1839	2,302	389	1862	32,120	834
1840	2,818	516	1863	33,170	1050
1841	3,535	717	1864	33,908	738
1842	4,026	491	1865	35,085	1177
1843	4,185	159	1866	36,827	1742
1844	4,377	192	1867	39,276	2449
1845	4,633	256	1868	42,255	2979
1846	4,930	297	1869	47,208	4953
1847	5,598	668	1870	52,898	5690
1848	5,996	398	1871	60,568	7670
1849	7,365	1369	1872	66,735	6167
1850	9,021	1656	1873	70,683	3948
1851	10,982	1961	1874	72,623	1940
1852	12,908	1926			

Sir Morton Peto visited this country in the autumn of 1865. An examination of the foregoing table shows that the railroad mileage of the United States was more than doubled during the nine years immediately following his return to England. His assertions as to the interest shown by the American people in the extension of the railway system are, in the main, correct, and are strongly corroborated by the tabular statement just given. Occasionally, however, a case of opposition to the progress of a railroad has occurred, but such instances have, by their very rarity, proved the rule to be the other way. Such opposition has sometimes recoiled upon

the opposer, as in the case of a man who was determined to prevent the passage of a certain railroad near his house. The charter had been secured, the route had been surveyed and staked out and the proposed road was to pass over a portion of his ground, which was the only feasible thoroughfare between his house and a canal. By the advice of an attorney, who told him that "his house was his castle," he built an addition to his residence which extended completely across the proposed line. He was somewhat astonished when his "addition" was taken down; and he failed to recover damages, beyond a fair price *for the land occupied.* Had the erection of the addition preceded the granting of the charter, or even the selection of the route, the result might have been different. This is, as we have stated, an exceptional case. Occasionally land is given to the companies both for portions of the road and for stations and other buildings, such as "round-houses" (stables for the "iron horse"), car-shops (for building and repairing cars), etc. The object of such gifts is to induce the projectors of these routes to locate their line or erect their buildings in places which will be convenient for the one who conveys the land. In one instance a tract of thirteen acres was presented to a railroad company for a car-shop and other buildings, the amount being made up by the owners of contiguous properties, who looked for their remuneration to the increased value of the land which they retained.

There has been too great a lack of uniformity in the matter of *gauge* in the construction of American railroads. The most common is that of 4 feet 8½ inches. It is said that this happened to be the width of the tramways in the North of England, that it was retained on newer roads, and that it was adopted in this country in order to permit the use of locomotives purchased in England. Independent gauges were afterward introduced, as that of 4 feet 10 inches in New Jersey, Ohio and Pennsylvania (on a few short roads); 4 feet 9½ inches on several roads in Pennsylvania and Ohio; 5 feet on many of the roads in Virginia, Tennessee, Mississippi and other Southern States; but the gauge of 4 feet 8½ inches has been rapidly gaining ground during the past fifteen years. We have before us a report of the gauges of various roads in 1873. Almost all the railroads of New York except the Erie Railway and its connections have the gauge of the old English tramways. Fifteen years ago the gauge of 5½ feet was the gauge established by law in Missouri. By the report which we have mentioned, 20 out of 22 roads have a gauge of 4 feet 8½ inches, and the remaining two are 5 feet in width. The broadest gauge yet used has been that of the Erie Railway (6 feet), but the tendency is toward the use of a narrower gauge. That of 4 feet 8½ inches was formerly called "narrow gauge," but that term is now frequently used in the same manner to describe a road as having a width of 3 feet. We now give (also from *Poor's Manual*) a

Statement of the number of miles of railroad, square miles to a mile of railroad, and inhabitants to a mile of railroad in each State and Territory in the Union.

State or Territory.	Miles of railroad.	Inhabitants to mile of railroad.	Sq. miles to mile of railroad.	State or Territory.	Miles of railroad.	Inhabitants to mile of railroad.	Sq. miles to mile of railroad.
Maine	957	669	36.6	Utah	459	250	184.0
New Hampshire	918	354	10.1	Dakota	275	130	54.9
Vermont	778	432	12.1	Colorado	682	147	153.2
Massachusetts	1786	882	4.3				
Rhode Island	173	1416	7.5	Western States	34,882	445	29.8
Connecticut	897	641	5.3				
				Virginia	1638	757	23.4
New Eng. States	5509	671	12.4	North Carolina	1315	851	38.5
				South Carolina	1320	550	25.8
New York	5250	876	8.9	Georgia	2260	550	25.7
New Jersey	1438	707	5.8	Florida	484	470	126.5
Pennsylvania	5687	664	8.0	Alabama	1722	604	29.3
Delaware	280	480	8.0	Mississippi	1018	854	46.2
Maryland and Dist. Columbia	1060	906	10.5	Louisiana	539	1420	76.7
				Texas	1650	500	167.5
West Virginia	576	803	39.9	Kentucky	1326	1060	28.5
				Tennessee	1630	310	28.0
Middle States	14,291	769	9.6	Arkansas	700	800	74.6
Ohio	4398	644	9.0	Southern States.	15,602	735	50.6
Michigan	3361	408	16.9				
Indiana	3890	462	8.7	California†	1328	508	142.3
Illinois	6759	429	8.2	Oregon	250	478	319.7
Wisconsin	2428	490	22.2	Nevada	650	115	160.2
Minnesota	1990	307	42.0	Washington	110	340	666.0
Iowa	3765	378	14.6				
Kansas	2150	280	37.8	Pacific States	2339	388	196.0
Nebraska*	1107	203	68.7				
Missouri	2880	677	22.7	Grand Aggregate.	72,623	581	34.4
Wyoming	459	120	214.9				

A portion of the rapid progress made in the annual railroad mileage is doubtless due to the land-grants made to certain railroad companies, with the condition that their roads should be completed within a given time. The land-grant railroads have a mileage of nearly 12,000. The effect of these grants was mainly felt, of course, in the Western States, which had 312 miles in 1844, 4001 miles in 1854, 12,497 in 1864 and 34,882 in 1874. The New England States had 865 miles in 1844, 3250 in 1854, 3793 in 1864 and 5509 in 1874. The Middle States had 3094 miles in 1844, 5058 in 1854, 7941 in 1864 and 14,291 in 1874. The Southern States had 1106 in 1844, 4411 in 1854, 9511 in 1864 and 15,602 in 1874. The Pacific States first entered into the account in 1855 with 8 miles in California, and 23 miles in that State constituted the only record during the following six years. In 1862 four miles in Oregon brought the number up to 27. In 1864 it was 166; in 1868, 889; in 1872, 1959; and in 1874, 2339. The aggregate cost of the railroads of the United States at the

* Including the Union Pacific Railroad.

† Including the Central Pacific Railroad.

close of 1872 was $3,159,423,057; at the close of 1873, $3,784,543,034 (increase, $625,119,977); at the close of 1874, $4,221,763,594 (increase, $437,220,560). The average cost per mile for all the roads in 1871 was $59,726; in 1872, $55,116; in 1873, $53,134; in 1874, $60,425. The gross earnings of all the roads for 1873 were $526,419,935, divided as follows: Received for the transportation of freight, mails and merchandise, $389,035,508; for the transportation of passengers, $137,384,427, the proportion of the former to the latter being as 74 to 26. The current operating expenses were $342,609,373, or 65.1 per cent. of the gross earnings. The net earnings were $183,810,562, or 34.9 per cent. of the gross earnings. The latter equalled 13.1 per cent. of the cost of the roads; the net earnings 4.96 per cent. The amount paid in dividends was $67,120,709, or 3.45 per cent. upon the aggregate amount of the share capital. The gross earnings to an inhabitant were $9.81 in 1871; $11.63 in 1872; and $12.80 in 1873. The gross earnings in 1874 were $520,466,016 (from transportation of freight, mails, etc., $379,466,935; from passengers, $140,999,081, the proportion of the former to the latter being as 73 to 27). The current operating expenses for the year were $330,895,058, being 63.6 per cent. of the gross earnings. The net earnings were $189,570,958, being 36.4 per cent. of the gross earnings. The gross earnings equalled 12.3 per cent. of the cost of the roads, and the net earnings were 4.50 per cent. of the cost. The amount paid in dividends was $67,042,942, or 3.39 per cent. on the capital stock. The gross earnings to an inhabitant were $12.32. The increase of the net earnings for a year when the gross earnings decreased nearly $6,000,000 was owing to the decrease of nearly $12,000,000 in the current operating expenses—a reduction arising from the decline in the prices of all kinds of material as well as of labor. The use of steel rails, which are being introduced upon many of the leading roads, is also calculated to reduce the operating expenses, as they outlast ordinary iron rails a much longer period than would be estimated from the increased cost.

AMERICAN ART.

THE progress of the fine arts was necessarily slow in America during the first century after the beginning of the settlement of the colonies. Those arts which had practical reference to the essential comforts of life naturally took the precedence of pursuits which require leisure, long study and a wealthy and cultivated class to furnish patrons for the successful artist. The first painters in this country were foreigners who came over to find a patronage which their abilities (frequently not above the average) had failed to secure them at home. There is one species of painting which is prized even by those who lack general culture in art, and which naturally is the first to be sought for in a new country. We refer to portraits of friends and relatives. The first artist-visitors were, therefore, portrait painters, and the earliest (whose name has been preserved) was John Watson, a native of Scotland. He crossed the ocean in 1715, painted portraits for more than fifty years, had, it is said, "no lack of sitters," and acquired a fortune by his labors, of which, however, not a single specimen (so far as is known) is extant. The next in order of time was John Smybert (or Smibert, as Walpole spells it). It is said of him that "he painted no pictures to be treasured in our galleries, yet left footprints of good incentive and example which we may clearly trace beneath the subsequent march of greater gifts. Copley, though but thirteen years of age at the time of Smybert's death, confesses indebtedness to him and his works. So also does Trumbull, who at one time painted in the apartments which Smybert had occupied, and in which many of the pictures of the latter still remained; while Allston was thankful for the advantages which he enjoyed in the permission to copy a head which Smybert had executed after Vandyke. Smybert accompanied Bishop Berkeley to this country in 1728, and lived at Boston in high favor until 1751, leaving behind him many portraits of the distinguished characters of his time." Like Watson, he was a Scotchman, and he also acquired a competence by the practice of his profession, and married in America a rich widow—a somewhat better lot than was anticipated for him by his friends, against whose persuasion "he was tempted to embark in the uncertain but amusing scheme of the famous Dean Berkeley, afterward bishop of Cloyne, whose benevolent heart was then warmly set on the erection of a universal college of science and arts in Bermudas,

for the instruction of heathen children in Christian duties and knowledge." Horace Walpole, from whose notice of Smybert in his *Anecdotes of Painting in England* we have just quoted, appends the following note, which is the more remarkable, as the cynic of Strawberry Hill was not given to bursts of enthusiasm. Walpole says: "One may conceive how a man so devoted to his art must have been animated when the dean's enthusiasm and eloquence painted to his imagination a new theatre of prospects, rich, warm and glowing with scenery, which no pencil had yet made cheap and common by a sameness of thinking and imagination. As our disputes in politics have travelled to America, *is it not probable that poetry and painting too will revive amidst those extensive tracts, as they increase in opulence and empire*, and where the stores of nature are so various, so magnificent and so new?" The volume in which these words occur was published in 1780, and within twelve years (March 24, 1792), Benjamin West, a native of America (though it is true he received his art education in Europe), delivered his inaugural address as the second president of the Royal Academy. How West drew a pen-and-ink picture of a sleeping child before the would-be artist was seven years of age; how before he reached the age of nine he drew on a sheet of paper recognizable portraits of a neighboring family with colors made of charcoal and chalk mixed with the juice of berries, and "with such colors laid on with the hair of a cat drawn through a goosequill;" how he obtained from the Mohawk and Delaware Indians the red and yellow pigments which they used at their toilets (his mother's indigo-pot supplied blue), yet (having never seen an Indian in full war-costume) forgot the moccasins and painted the Indian warrior as barefoot, in his picture of "The Death of Wolf;" how Allan Cunningham, substituting Benjamin for his elder brother, sends the Quaker artist off to the wars in company with a select body of Indians (a substitution copied by several of his biographers and in the sketch of West in the old edition of Appletons' *American Cyclopœdia*); how he succeeded in reaching Rome, and when he was first shown the famous statue of Apollo Belvedere exclaimed, "How like a young Mohawk warrior!" much to the disgust of blind old Cardinal Albani, who considered it an insult to the representation of the "god of the silver bow;" how the young lady to whom West was engaged to be married was unwilling to call him away from England, thereby interrupting his rapid progress, and went over with the father of the artist to London, where she was married to one whom to the last she declared to be "without a fault;"—all this and much more has been dwelt upon with great fulness in works professedly treating in detail what can here claim but a brief notice. Although the greater part of his art-life was spent abroad, America still claims him as one who never forgot the land of his birth, and whose teachings were of great value to other native American artists who were his contemporaries. Many of his works are

now in America, the most accessible being his "Death on the Pale Horse," which is in the collection of the Pennsylvania Academy of Fine Arts in Philadelphia, and "Christ Healing the Sick," which is in the Pennsylvania Hospital, in the same city. One of his contemporaries—John Singleton Copley, the father of a future Lord Chancellor of England (Lord Lyndhurst)—was another American who went to Great Britain and proved that the atmosphere of the New World was not an uncongenial one for the growth of a love of art. Lord Lyndhurst (who became thoroughly "Britonized," having left this country when three years old), when written to by Professor S. F. B. Morse for information respecting his father, remarked in a civil but frigid note that the latter "was entirely self-taught, and never saw a decent picture except his own until he was nearly thirty years of age." Dunlap, the author of the *History of the Arts of Design in America*, will not admit that Copley had never seen "a decent picture, with the exception of his own," until he saw the treasures of European art. "Smybert and Blackburn painted in Boston; and even if the young man did not receive their instruction as a pupil, he saw their pictures, which were more than decent, and received the instruction which is conveyed by studying the works of others. He also saw many which were more than decent, if he saw only the collection of pictures belonging to Governor Hamilton." Following the order of Dunlap, who introduces his artists in the order of the time when each practiced his profession *in this country*, the next on our list is Charles Wilson Peale, whose date is fixed by Dunlap (in accordance with the above rule) in 1769. He was a man of versatile genius. He successively carried on the trades of saddler, harness-maker, silversmith, watchmaker and carver, and afterward, "as a recreation from his sedentary practice of portrait-painting," he became a sportsman, naturalist and preserver of animals, made himself a violin and guitar, invented and constructed a variety of machines, and was the first dentist in this country that made sets of enamel teeth. He did not take up painting until he was twenty-five years of age. Seeing at this time some very wretched portraits, "he thought that he could do as well if he tried." He did try, and succeeded in painting a portrait of himself which brought him into notice, but afterward escaped notice itself for forty years, at the end of which period it was found "tied up as a bag, and containing a pound or two of whiting." For about fifteen years he was the only portrait-painter in America, and "persons came to him to be painted even from Canada and the West Indies." He raised a company for service in the Revolutionary war, during which contest he painted the portraits of many distinguished officers, some of whom were afterward killed. This collection constituted the chief interest of a picture-gallery which he established shortly after the war, at the corner of Third and Lombard streets, Philadelphia. By the addition from time to time of various curiosities (among others the

skeleton of a "mammoth," the picture of which formerly adorned many school-books), he brought the collection once famous as "Peale's Museum" up to a size and condition which justified a comparison with the most celebrated establishments in Europe, but the articles were afterward sold and "scattered to the four winds of heaven." He died in 1827 (aged 85), seven years after West, who died in 1820, in the eighty-second year of his age. Of Colonel John Trumbull, who was also an officer in the Revolutionary army, a writer in the *North American Review* for October, 1830, has said: "The general reputation of Trumbull is hardly equal to that of West, although the 'Sortic from Gibraltar' is perhaps superior in effect to any production of the latter artist. This noble picture may justly be ranked with the finest productions of the pencil, and would for ever secure to the author, had he done nothing else, a rank with the greatest masters of the art. If his success has been, on the whole, inferior to that of his illustrious contemporary, it is probably because his devotion to his profession has not been so exclusive. The four great paintings on subjects connected with the Revolutionary war which he executed for Congress ['The Declaration of Independence,' 'The Surrender of Cornwallis,' 'The Surrender of Burgoyne' and 'Washington's Resignation'] have, on the whole, hardly satisfied the public expectation, and for that reason have perhaps been depreciated below their real worth." It has been the fashion in this country to speak disparagingly of these pictures, yet it was immediately after seeing these very paintings in the Capitol at Washington that Thackeray (surely a sufficiently fastidious critic) pronounced a highly eulogistic opinion upon Trumbull's merit as an artist. Other specimens of his skill may be seen in the "Trumbull Gallery," in New Haven, on the grounds of Yale College, to which institution he presented his collected works a few years before his death, upon the condition that the paintings should be suitably housed, and that the artist should receive an annuity of one thousand dollars. The names of the successors of the pioneers whom we have mentioned crowd so thick and fast upon us that we can do little more than give very brief notices of a few of the most prominent among them. The longevity of American artists is noteworthy. Trumbull died in 1843, at the age of eighty-seven years; Vanderlyn (who was a blacksmith's apprentice, but afterward became a leading portrait-painter) in 1852, aged seventy-six. Another point which we would dwell upon is the number of American artists who have worked themselves up from comparatively humble circumstances, or who have acquired a competence by the pursuit of other callings before giving their whole attention to art. Chester Harding worked at first on a farm, then at chair-making, then at house-painting, then at sign-painting, and finally he made his way into the ranks of the portrait-painters, and rose so high in his profession that he numbered among his sitters such men as Madison, Monroe, Marshall, Wirt, Clay,

Webster, Calhoun and Allston in America, and in England painted the portraits of the dukes of Norfolk, Hamilton and Sussex, Lord Aberdeen and Samuel Rogers. Charles Fraser practiced law until he was thirty-six years of age, then began in earnest to devote himself to art. He died in 1860, aged 78. An exhibition of his collected works, opened in Charleston three years before his death, contained 313 miniatures and 139 landscapes and other paintings in oil. Washington Allston, poet and painter, was born on his father's plantation, at Waccamaw, in South Carolina, on the 5th of November, 1779. In 1801 he was a student of the Royal Academy in London. In 1810, having visited Europe a second time and exhibited his famous picture of "The Dead Man Revived by touching the Bones of Elijah," he received a prize of 200 guineas from the British Institution. He painted many other scriptural subjects, and began in 1818 a composition entitled "Belshazzar's Feast." In November of that year Allston wrote of this picture, "There still remains about six or eight months' more work to do to it." The writer in the *North American Review* for October, 1830 (whom we have already quoted), says of Allston: "We trust that he will not permit another year to pass over without putting the last hand to the grand heroical composition upon which he has employed so many, and that this will be followed by many of eqnal merit and of a rather more rapid growth." Thirteen years after these words were written Allston died (July 9, 1843), leaving this work, upon which he had been engaged for twenty-five years, still unfinished. His taste had become more exacting with his advancing years; and though he had completed other productions, the master-piece, even as far as it was finished, could not satisfy his ideal, but remains as a warning against that extreme fastidiousness which in early life may be a virtue, but which must be cast aside by the mature artist; for were it to become general not a single work of art would ever be completed. The last artist of whom our limited space permits us to say more than a word or two is Gilbert Stuart, of one of whose portraits it was said by Sully, "It is a living man looking directly at you!" Of that one of Stuart's works which is best known to the American people Dunlap says: "This beautiful image of the mind as well as features of Washington was offered to the State of Massachusetts by the artist for $1000, which they refused to give. Those entrusted with our national government passed by the opportunity of doing honor to themselves during the life of a man whom they could not honor, and the only [faithful] portrait of Washington was left neglected in the painter's workshop until the Boston Athenæum purchased it of his widow." Art has made great advances in America during the present century. The progress and present condition of painting is thus summed up by Weyman: "About 1825 Thomas Cole founded what may be called the American school of landscape painting, a department which has since been cultivated by native artists more univer-

sally than any other. The works of Cole, though not remarkable as literal transcripts of individual forms, are characterized by a thoughtful morality and a tendency to allegory. The series of 'The Course of Empire' and 'The Voyage of Life' are his most elaborate productions. Contemporary with Cole and immediately succeeding him were Doughty, Durand [also a remarkably fine engraver on steel], Inman and Fisher, the two first named eminent in landscape painting, and the third the first American painter who attempted genre [pictures of every-day life and manners which, for want of a definite character, are classed together as of a certain *genre* or kind] with success; Rembrandt Peale [the son of Charles Wilson Peale], Weir, Huntington, Rothermel and Page, painters of history, portraits, landscapes and genre, and the last named distinguished as a colorist; Neagle, Morse [the inventor of the electric telegraph], Ingham, Harding and Fraser, portrait-painters. Since the middle of the century American painters have devoted most of their attention to landscape and genre, and their efforts have in a measure reflected the influence of the French school. French paintings predominate in the private collections of the country, and French types of form, color and design have been reproduced, with such modifications as national tastes and habits of thought have rendered necessary. The influence of other modern schools is almost inappreciable. Landscape has been pursued as a rule from a purely realistic point of view, American painters in this department seldom aiming to give more than a literal (if sometimes an exaggerated) transcript of nature. Prominent among painters of this class have been Church and Bierstadt, both remarkable for the production of grand and elaborate pictures on an extensive scale; Kensett, whose peculiar mannerism often carried him within the realm of the ideal; Inness, a follower of the French landscapist Rousseau; James M. and William Hart, Cropsey, Casilear, R. S. and S. R. Gifford, G. L. Brown, Bristol, S. Colman, W. T. Richards, [A. F. Bunner], Tilton, Tiffanay, McEntee, Whittredge, Cranch, La Farge, Griswold, Smillie, Sonntag, Thomas Hill, Mignot, T. Moran, Gay, Gignoux, Wyant, Gerry, Bellows, Shattuck, Bricher, Hubbard, Fitch and Yewell. Among marine painters may be mentioned E. Moran, [Hamilton], De Haas, Dana, Haseltine, Bradford and Dix. Portraiture has been pursued with success by Elliott, W. M. Hunt, [O. S. Freeland], Baker, Healy, Le Clear, W. O. Stone, Hicks, H. P. Gray, Staigg, Ames, Flagg and others. History and genre are represented by Eastman Johnson, [Professor C. Schuessele, a greater name than the majority of those mentioned by Mr. Weyman], Winslow Homer, Leutze, J. F. Weir, E. White, Mount, May, Powell, Darley, Guy, Lambdin, Hennessy, G. H. Hall, J. G. Brown, Perry, T. W. Wood, Vedder, Terry, C. C. Coleman and Freeman; and J. H. and W. H. Beard, Butler, P. Moran, Hays, Tait and Hinckley are noted as painters of animals."

There are two "Academies," the National Academy of Design, founded by Professor S. F. B. Morse, and the Pennsylvania Academy of Fine Arts, both of which are flourishing and useful institutions, affording all requisite facilities for the assistance of the intelligent student, providing for the annual display of the productions of our artists, and serving by their very existence to foster and keep alive an interest in the objects for which they were founded.

The first native sculptor who gave evidence of talent above mediocrity was John Frazee, born in 1790, who was a bricklayer's apprentice, and never used a chisel until he was eighteen years of age, when the demand for some one to put his master's name on a neat tablet of stone, with the date of the completion of a bridge which he had built, led Frazee to undertake this task, which was declined (as being too difficult for them) by several stone-cutters. He succeeded in satisfying the ambitious architect, and applied himself afterward to stone-cutting, then began to model the human figure, and in 1824 chiselled "a bust in marble of John Wells, Esq.," which is in Grace Church, New York, a work which is described by Dunlap as "the first portrait in marble attempted in the United States." Dunlap also says (writing in 1834): "From this beginning he has progressed to a perfection which leaves him without a rival at present in the country." There was, however, a rival and a superior to Frazee among American sculptors, though he was abroad when Dunlap wrote, and said, with characteristic modesty, when he heard that Dunlap wished particulars of his life: "A note to Allston's life might tell all of me which is essential. What is the use of blowing up bladders for posterity to jump upon for the mere pleasure of hearing them crack?" The reputation of Horatio Greenough (for it was he) was not so evanescent as he anticipated that it would be. The sculptor of "the first original group from the chisel of an American artist" ("The Chanting Cherubs," executed for James Fenimore Cooper), of the "Medora," at Baltimore, of the "Venus Victrix," in the Boston Athenæum, and of "the colossal statue of Washington which now stands so grandly on the great lawn opposite the east front of the national Capitol;" the lecturer upon art, who during the last year of his life was occupied in instructing his fellow-countrymen in the principles of just art criticism,—would occupy an honored place in the annals of the art-life of this country, even if he had not found a worthy eulogist in his friend, the poet Tuckerman. Greenough died on the 18th of December, 1852. Hiram Powers (born at Woodstock, Vt., July 29, 1805, died June 27, 1873) is widely known as the sculptor of the famous statue of "The Greek Slave," a work which won for us "the first general and popular acknowledgment at home and abroad of our success in sculpture." His colossal figure of Eve, which excited the admiration of Thorwaldsen, and his full-length statue of Calhoun which suffered shipwreck off the coast of Long Island,

but was rescued without injury, are preserved in South Carolina. The greatest of American sculptors was Thomas Crawford (born March 22, 1814, died Oct. 10, 1857), whose statue of Washington, at Richmond, of Beethoven, in Music Hall, at Boston, and of "Armed Liberty," executed for the dome of the Capitol at Washington, are the best known of his works, which numbered 60 completed ones and 50 sketches in plaster and designs of various kinds. Brown, Palmer, Thompson, Mills, Mosier, Rogers, Story, Akers, Bartholomew, Ball, Hart, Stone and others have all won honorable distinction, as well as Harriet Hosmer and other American women, some of whom have made great progress in this difficult and laborious art. The "Maud Muller" of Blanche Nevin is worthy of special mention here as a thoroughly American subject, treated with great spirit and skill.

In engraving great progress has been made in this country, but the only development which we have space to enlarge upon is the "Graphic Process," which could be called "engraving" only upon the etymological principle of "*lucus a non lucendo.*" The illustrations of the *Daily Graphic*, the only illustrated daily newspaper in the world (unless *one* daily caricature can give the Paris *Charivari* a claim to that title), are prepared by a photo-lithographic process, so rapid in its workings that a full-page picture can be made ready for the press in an hour. We have before us a copy of "The Death of Priam," executed by this process, which compares favorably with many expensive engravings. As this method of producing illustrations was invented in America—a method which makes it possible with the rapidity of print to pictorially illustrate the events of each day, and to spread broadcast through the land, at the price of an ordinary daily newspaper, reproductions of the masterpieces of painters of every age and country, thus elevating and improving the public taste—we could not more appropriately conclude this article than by an acknowledgment of the merits of this latest fruit of American invention as applied to the development of American art.

AMERICAN INVENTIONS.

Introduction.—It requires no argument to prove that the Americans are an inventive people. The mother of invention, necessity, caused the early settlers to turn their attention to the improvement of their utensils and machinery, and in the *Body of Liberties*, adopted by the General Court of Massachusetts in 1641, it was declared that there should be "no monopolies *but of such new inventions as are profitable to the country*, and that for a short time only." Within five years (May 6, 1646) a patent was granted by the same legislative body to Joseph Jenckes, giving him "liberty to make experience of his abilities and inventions for the making of engines for mills to go with water for the more speedy despatch of work than formerly, and mills for the making of scythes and other edged tools with a new-invented saw-mill (*sic*), that things may be afforded cheaper than formerly, and that *for fourteen years without disturbance by any others setting up the like inventions, that so his study and cost may not be in vain or lost.*" The General Court reserved the right to restrain the exportation and to moderate the prices of the articles manufactured under this patent. A patent law was enacted in 1784. By virtue of the powers conferred by the Constitution (Article I., Section 8), the first patent law was passed by Congress in 1790 (April 10), granting to the inventor or inventors, "his, her or their heirs, administrators or assigns, for any term not exceeding fourteen years, the sole and exclusive right and liberty of making, constructing, using and vending to others to be used" the invention or discovery for which the patent was granted. The first patent under this law was issued on the 31st of July, 1790, and two others were granted during that year. The number of patents issued during the year 1812 was 235. Warden, in his *Account of the United States of America* (published in 1819), says: "In mechanics the Americans have been particularly inventive. The machinery of flour-mills has several ingenious contrivances not known in Europe. The machines for making cotton-cards and for the manufacture of nails are no less useful to the country than creditable to the inventors. Two Americans are candidates for the prize of 1,000,000 francs offered by the French government for the best machine for spinning flax. The saving of manual labor by one of the American machines is said to be four-fifths, but the conditions of the prize require nine-tenths.

The method employed of lighting the interior of American vessels by means of cylinders of glass placed in the deck is found to be very useful at sea. A new apparatus for the distillation of water on board of vessels at sea (invented by Major Lamb of New York) is found so superior to the contrivances formerly in use that it has been adopted by the English navy boards for the public ships. The American machinery for making boots and shoes by means of iron wire or nails has been lately employed in England, and an idea may be formed of its economical advantages from the circumstance of its being able to furnish a pair of shoes in a quarter of an hour." This same writer, in his articles on the several States, mentions occasionally an invention which, at the present day, is in such general use that it seems strange to class it as an "invention." The "inventions claimed by persons" in the State of Maryland, for instance, are represented by the following single entry: "Bradley (J. B.); an ice-house which consists of a frame of logs of greater or less dimensions, placed above or below the surface, lined within and without with straw and covered with a roof, with a basin to receive the water from the rain or the melted ice." There were, however, other inventions, which were of such importance as to influence the progress of the whole nation in a wonderful manner. Of a few of these, both before and after the time of Warden, we shall now give brief notices.

The Steamboat.—Popular opinion has awarded the praise due for the invention of the steamboat, or rather the successful application of steam as a means of propelling water-craft, to Robert Fulton, and has fixed the date at 1807. The following facts, which we have drawn mainly from the excellent *Life of John Fitch* by Thompson Westcott, and from the biographical sketch of Fitch by Charles Whittlesey (in *Sparks' American Biography*), will, we hope, be effectual in leading our readers to give "honor to whom honor is due." John Fitch conceived the idea of a steamboat in April, 1785, having at that time never seen a steam-engine. His first idea was to construct steam land-carriages, but he abandoned this notion as impracticable. He fully realized the magnitude of the discovery, for he says, in a letter to Franklin (Oct. 12, 1785): "The subscriber most humbly begs to trouble you with something further on the subject of a steamboat. . . . It is a matter in his opinion of the first magnitude, not only to the United States, but to every maritime power in the world, as he is full in the belief (*sic*) that it will answer for sea-voyages as well as for inland navigation, in particular for packets where there should be a great number of passengers. He is of opinion that fuel for a short voyage would not exceed the weight of water for a long one, as it would produce a constant supply of fresh water. He also believes that it would be able to make head against the most violent tempests, and thereby escape the dangers of a lee shore, and that the same force may be applied to a pump

to free a leaky ship of water. What emboldens him to be thus presuming of the good effects of the machine is the almost omnipotent force by which it is actuated, and the very simple, easy and natural way by which the screw or paddles are turned to answer the purpose of oars." The first engine (for a small skiff) was made in July, 1786, and had a cylinder of only *one inch diameter*. It would not work regularly, not having force enough to overcome the friction. Another engine was constructed with a cylinder of three inches diameter. Attempts to apply this to the propulsion of the boat by an "endless chain," "a screw of paddles" (akin to the principle used to-day in the construction of screw propellers) and various other appliances were unsuccessful; but on the 27th of July, 1786, a speed of seven miles an hour was attained by the use of paddles worked by a crank. The following description (written by the inventor) of a new and enlarged engine and craft is *found** in the *Columbian Magazine* for December, 1786 (vol. i., page 174): "It is in several parts similar to the late improved steam-engines in Europe, though there are some alterations. Our cylinder is to be horizontal and the steam to work with equal force at each end. The mode by which we obtain (what I may take the liberty of terming) a vacuum is, we believe, entirely new, as is also the method of letting the water into it and throwing it off against the atmosphere without friction. It is expected that the engine, which is a 12 inch cylinder, will move with a clear force of 11 or 12 cwt. after the frictions are deducted. This force is to act against a wheel of 18 inches diameter. The piston is to move about three feet, and each vibration of the piston gives the axis about 40 evolutions (*sic*). Each evolution of the axis moves 12 oars or paddles 5½ feet (which work perpendicularly and are represented by the stroke of the paddle of a canoe). As 6 of the paddles are raised from the water, 6 more are entered, and the two sets of paddles make their strokes of about 11 feet in each evolution. The cranks of the axis act upon the paddles about ⅓ of their length from the lower end, on which part of the oar the whole force of the axis is applied. Our engine is placed in the boat about ⅓ from the stem, and both the action and reaction turn the wheel the same way." The following account of the performance

* This word is italicized to indicate that the quotation as given is actually *found* in the work referred to, which is more than can be said for several published versions, which, when compared, read more like translations from a passage in a foreign language than copies of the same description, originally printed in tolerably plain English. Mr. Whittlesey (following Howe in his *Lives of Eminent Mechanics*) has, "The *crank* of the axis *works* upon the paddles," etc., although the engraving in the *Columbian Magazine* plainly shows two cranks. We have given the description as it stands, preserving even the figures and abbreviations, and the apology for using the term vacuum, the necessity for which apology is a striking commentary upon the lack of general information with reference to the principles of the steam-engine.—Ed. U. S. Centennial Gazetteer and Guide.

of this boat was written by an eye-witness (Dr. Thornton, afterward Commissioner of Patents under the Constitution): "The day was appointed, and the experiment was made in the following manner: A mile was measured in Front (Water) street, Philadelphia, and the bounds projected at right angles, as exactly as could be, to the wharf, where a flag was placed at each end, and also a stop-watch. The boat was ordered under way at dead water, or when the tide was found to be without movement; as the boat passed one flag it struck, and at the same instant the watches were set off. As the boat reached the other flag it was also struck, and the watches instantly stopped. Every precaution was taken before witnesses; the time was shown to all, the experiment declared to be fairly made, and the boat was found to go at the rate of *eight miles an hour*, or one mile in seven minutes and a half; on which the shares were signed over with great satisfaction by the rest of the company [several shareholders who had withheld their signatures while awaiting the event of this trial]. It afterward went *eighty miles in a day!*" Exclusive privileges, amounting to a patent, were granted to Fitch by the legislatures of Pennsylvania, New York, Delaware and Virginia, but the difficulty of raising the large sums of money requisite to successfully carry through his plans prevented the accomplishment of his designs, though he also obtained a United States patent, dated August 26, 1791, "for applying the force of steam to cranks and paddles for propelling a boat or vessel through the water." In 1798, the inventor of the steamboat, having saved a dozen opium pills which had been given to him from time to time as anodynes, took them all at one dose, and thus put an end to his existence, having been ridiculed for several years as a crazy projector of impossibilities. Robert Fulton had been residing in Philadelphia in 1775 when Fitch was making his scheme known. He had the advantage of examining the papers of Mr. Fitch containing the scheme of the latter for steam navigation. The claims of Fulton for originality are thus disposed of by Mr. Westcott: "Robert Fulton had what John Fitch had not—a rich, enthusiastic, liberal, influential patron. Chancellor Livingston was willing to put up with a boat going five miles an hour; Fitch's company were dissatisfied with one which progressed seven and eight miles in the same time. Fulton had the very best machinery which could be made in Europe; Fitch made his own, by the aid of common blacksmiths, roughly, and had to experiment as he went on to discover the relative positions and influences of the various parts of the engine and rowing apparatus upon each other. Fulton began after years wasted by other men in trials by which he profited; and appropriating to himself the principles made manifest by the results of their toils, disappointments and losses, is now held out to the world as the original inventor of steamboats. Against such rank injustice the facts set forth in these pages will continually protest."

The Cotton-Gin.—In the winter of 1792 a party of Revolutionary officers, who were visiting Mrs. Greene (the widow of General Greene), then residing near Savannah, Georgia, expressed great regret that there was no method of cleansing the green seed cotton or separating it from the seed, and remarked that until ingenuity could devise some machine which would greatly facilitate the process of cleansing, it was impossible to profitably raise cotton for the market. "Gentlemen," said Mrs. Greene, "apply to my young friend, Mr. Whitney; he can make anything." Whitney, who was a native of Westboro', Worcester county, Massachusetts, and a graduate of Yale College (class of 1792), had never seen either cotton or cotton seed. It was out of the season for cotton in the seed, and it was only by going to Savannah and searching the warehouses and boats that he obtained a small parcel of it. He shut himself up in a basement room, and after weeks of intense application the following incident (related in *De Bow's Review* for November, 1853) gave him a clue to the required method: "While walking for exercise one day after dinner, with a tooth-pick in his hand, and being in deep meditation upon the project of constructing an instrument for separating cotton from the seed, he picked up a boll of cotton which accidentally lay upon the ground before him, and in trying the tenacity of the fibre to the seed he mechanically separated the one from the other with his tooth-pick. The thought flashed upon his mind that a proper arrangement of *metallic points*, so as to be brought in contact with the fibre to the exclusion of the seed, would effect his object. This was his cue, and the invention of the *saw-gin* was the result." With such rude instruments and materials as he had at hand he went to work, made his own instruments and drew his own wire, of which the teeth of the first gins were made, wire being at that time an article which could not be found in the market of Savannah. Within ten days after his plan was conceived he had constructed a small model. Encouraged by the result of a trial with this, he proceeded to make a larger one, which was completed and exhibited in April, 1793. Although it has undergone some modifications the principle has entered into all the most efficient ginning-machines since employed. Thus was opened to the Southern agriculturist an unbounded source of wealth in a new staple, but the reward of the inventor consisted mainly in contentions and lawsuits. The news of the invention spread throughout the State. Multitudes of people came to see the machine; and when access to it was denied them from motives of prudence, lawless men broke open the building containing the model and carried it off. In this way the public became possessed of the invention; and before Mr. Whitney could complete his model and secure his patent, a number of machines were in operation constructed with some slight deviation from the original, with the hope of evading the penalty for infringing the patent right. Mr. Whitney and a partner (Mr. Miller, who had married Mrs. Greene) strug-

gled manfully in defence of their rights, but they committed the error of attempting to engross the entire business themselves by erecting machines in every part of the cotton district and ginning the cotton at a royalty of one-third of the amount cleansed. By this course they arrayed the cotton producers against them, whereas, if they had confined their views to the manufacture of machines and the sale of patent rights, every purchaser of a machine or of a right would have been enlisted on their side, they would have become stronger every year, and they would have avoided many of the difficulties with which they afterward had to contend. The State of South Carolina purchased their right for that State for the sum of $50,000, and in the following year the State of North Carolina became also a purchaser, the legislature laying a tax of two shillings and sixpence upon every saw (and some of the gins had forty saws) employed in ginning cotton, which sum was collected by the sheriff in the same manner as the public taxes, and after deducting the expenses of collection the proceeds were faithfully paid over to the patentees. The money received from these sources was, however, nearly all spent in carrying on fruitless lawsuits in Georgia. Sixty of these suits were instituted before a single decision on the *merits* of Mr. Whitney's claim was obtained; and when this decision was reached, thirteen years of the patent had expired. Says *De Bow's Review*: "It is painful to follow further the history of this great man. Although his invention benefited his country untold millions, yet he received no adequate compensation. Though depressed by pecuniary embarrassments, no public reward like the English grant to their successful inventors soothed the evening of his life," yet in the words of his epitaph: "While private affection weeps at his tomb, his country honors his memory."

The Electric Telegraph.—Many hundreds of pages of controversial writing have been expended upon the question, Who invented the electric telegraph? It is certain that several scientists were working out simultaneously, or nearly so, the problem of communicating at a distance by means of an electric current. It is certain that an article by Professor Henry upon the application of the galvanic multiplier to electro-magnetic apparatus, and also to the development of great magnetic power in soft iron with a small galvanic element (meaning a single pair of galvanic plates), was published in *Silliman's Journal* for April, 1831. This article arrived too late for insertion in its proper place, but its importance induced Professor Silliman to give it in an appendix. It is equally certain that none of the scientists had devised a method of recording a message before Samuel Finley Breese Morse embarked at Havre, on the packet-ship *Sully;* that he completed the plan of his alphabet and his mode of writing and printing, and committed them to paper before reaching New York; and that he exhibited a working model of his conception in 1835, and a model not in action of his relay in 1835 and 1836. "All concede the con-

ception of the alphabet and the mode of printing to Morse on board the *Sully*." The dates of the telegraphs of Cooke and Wheatstone in England and of Steinheil in Germany are both fixed in 1837, while Morse "put up a half mile of wire in coils around a room and exhibited a telegraph in operation in 1835." It can scarcely be considered a full statement of the case to say (as Bright does in his revision of Lardner's *Electric Telegraph*): "Before passing on to *the telegraphs actually in use*, it should be mentioned that Professor Morse of America (whose system was put into a practical shape at a later period) has shown that the germ of the recording apparatus, which has since been so generally adopted, was the subject of some experiments by him in America at a time slightly anterior to the telegraph of Messrs. Cooke and Wheatstone." On the 27th of September, 1837, Professor Morse answered a circular which had been issued by the Secretary of the Treasury with the view of obtaining information in regard to the propriety of establishing a system of telegraphs in the United States. The "telegraphs" which were in the mind of the author of this document were probably systems of semaphores similar to those in use in Europe, consisting of towers five or ten miles apart, from which signals could be transmitted in the daytime and in clear weather, for another system is requested "for communication in fogs, by cannon or otherwise, and in the night by the same mode, or by rockets, fires, etc." In this reply Professor Morse described his invention at some length, and by a petition dated the following day he asked for a caveat for "a method of recording permanently by electrical signs, which, by means of metallic wires or other good conductors of electricity, convey intelligence between two or more places." It was some time, however, before he was able to make his invention of use to the public. With scanty means he struggled along, making strenuous efforts to obtain an appropriation from Congress for the construction of an extended line; and in the spring of 1843, when he had given up all hope, he learned one morning (March 5) that during the last hour of the session of Congress which had closed at the preceding midnight an appropriation of $30,000 had been made for the purpose of testing his invention. A line between Baltimore and Washington (a distance of forty miles) was completed on the 24th of May, 1844. The privilege of inditing the first message was promised to Miss Ellsworth of Washington (who had been the first to announce to him the passage of the appropriation bill), and that message was "*What hath God wrought?*" This message was sent to Baltimore and repeated to Washington; and it is stated in a letter from Professor Morse to Bishop Stevens that "the strip of paper upon which the telegraphic characters are printed was claimed by Governor Seymour of Hartford, Connecticut, then a member of the House, on the ground that Miss Ellsworth was a native of Connecticut. It was delivered to him by Miss Ellsworth, and is now preserved in the

archives of the Hartford Museum or Athenæum." The successful inventor probably received during the remainder of his life more marks of distinction than any other American. "Violations of his patents and the assumption of his rights by rival companies involved him in a long series of lawsuits, but eventually these were decided in his favor, and he reaped the benefits to which his invention entitled him. In 1846 Yale College conferred upon him the title of LL.D., and in 1848 he received the decoration of the *Nishan Iftikar* in diamonds from the Sultan of Turkey. Gold medals of scientific merit were awarded him by the king of Prussia, the king of Würtemberg and the emperor of Austria. In 1856 he received from the emperor of the French the cross of chevalier of the legion of honor; in 1857 from the king of Denmark the cross of knight commander of the first class of the Danebrog; in 1858 from the queen of Spain the cross of knight commander of the order of Isabella the Catholic; from the king of Italy the cross of the order of SS. Maurice and Lazarus, and from the king of Portugal the cross of the order of the Tower and Sword. In the same year, at the instance of Napoleon III., representatives of France, Russia, Sweden, Belgium, Holland, Austria, Sardinia, Tuscany, the Holy See and Turkey met in Paris to decide upon a collective testimonial to him, and the result was a vote of 400,000 francs [$80,000] as a personal reward for his labors." Banquets were given him in London, Paris and New York, and in June, 1871, a bronze statue of him, erected by the voluntary contributions of telegraphic operators, was formally unveiled in Central Park, New York, by William Cullen Bryant, and in the evening a reception was held in the Academy of Music, at which Professor Morse telegraphed (using one of the instruments employed on the original line between Baltimore and Washington) a message of greeting to the cities of America.

The Sewing-Machine.—There is one thing for which a claim cannot be maintained by any other nation with any degree of plausibility. The honor of having given birth to the inventor of the sewing-machine certainly belongs to the United States. When infringements upon Mr. Howe's patent were begun, "the patent records of England, France and the United States were searched, encyclopædias were examined, and an attempt was even made to show that the Chinese had possessed a sewing-machine for ages;" yet after all this trouble and after years of litigation, Judge Sprague observed, when pronouncing his decision, "There is no evidence in this case which leaves the slightest doubt that for all the benefit conferred upon the public by the introduction of a sewing-machine the public are indebted to Mr. Howe." It was in the year 1839, according to Parton, that Elias Howe heard the remark that the invention of a sewing-machine would ensure an independent fortune to the man who was able to accomplish the difficult task. Howe was then twenty years old.

The remark was never forgotten, but it required the pressure of poverty to bring him fairly to work upon the problem, which, when solved, gave him eventually an independent fortune ($200,000) as his yearly income. It was not before the winter of 1844–45 that the idea of using two threads and forming a stitch by the aid of a shuttle and a curved needle with an eye near the point occurred to him, but then his success was assured. In April, 1845, he sewed a seam with his machine. "In July he sewed by his machine all the seams of two suits of woollen clothes, one suit for Mr. Fisher [who was at that time his partner and his only convert] and the other for himself, the sewing of both of which outlasted the cloth. . . . It is agreed by all disinterested persons (Professor Renwick among others) who have examined this machine, that Elias Howe, in making it, carried his invention farther on toward its complete and final utility than any other inventor has ever brought a first-rate invention at the first trial." The inventor was not afraid to subject his handy-work to a thorough test. Upon one occasion he challenged five of the swiftest seamstresses in a clothing manufactory to sew a race with him. "Ten seams of equal length were prepared for sewing, of which five were laid by the machine and the other five were given to the girls. The gentleman who held the watch, and who was to decide the wager, testified upon oath that the five girls were the fastest sewers that could be found, and that they sewed as fast as they could—much faster than they were in the habit of sewing—faster than they could have kept on for one hour. Nevertheless, Mr. Howe finished his five seams a little sooner than the girls finished their five, and the umpire, who was himself a tailor, has sworn that 'the work done on the machine was the neatest and the strongest.'" Even this successful contest was not the means of introducing the sewing-machine into general use. It was only after the lapse of several years that the new invention began to be appreciated, and then rival inventors came into the field who were finally vanquished or conciliated by Mr. Howe. A combination was formed by the leading manufacturers, which before the renewal of the patent in 1860 paid Mr. Howe five dollars for every machine sold in the United States, and after that date one dollar for each machine. So great, however, had been the expense of the lawsuits that when Mr. Howe died, in 1867, his estate was worth less than $500,000, though his receipts up to that time had been $1,700,000.

Patents.—A glance at the accompanying table will show the number of American inventions patented from 1840 to 1874, inclusive. The following note from *The American Patent System*, by H. and C. Howson, may be of service to the reader. "A *caveat* is simply a warning notifying the patent office that the caveator has made an invention which he intends to mature, and to apply for a patent therefor within one year. A caveat refers to an avowedly uncompleted invention, while letters-patent are granted

only for one which is complete. It is common to allude to caveats as affording a temporary security, thus leading many inventors to a mistaken impression that a caveat is a sort of temporary patent." This it is not, being merely a notice obliging the patent office to grant no patent for the invention to any other claimant (without giving the caveator an opportunity to establish his priority of right) during one year after the filing or the renewal of a caveat.

Statement of the Applications filed, Caveats filed and Patents issued for 35 *Years, ending December* 31, 1874.

Year.	Applications Filed.	Caveats Filed.	Patents Issued.	Year.	Applications Filed.	Caveats Filed.	Patents Issued.
1840	765	228	473	1858	5,364	943	3,710
1841	847	312	495	1859	6,225	1097	4,538
1842	761	391	517	1860	7,653	1084	4,819
1843	819	315	531	1861	4,643	700	3,340
1844	1045	380	502	1862	5,038	824	3,521
1845	1246	452	502	1863	6,014	787	4,170
1846	1272	448	619	1864	6,972	1063	5,020
1847	1531	553	572	1865	10,664	1937	6,616
1848	1628	607	660	1866	15,269	2723	9,450
1849	1955	595	1070	1867	21,276	3597	13,015
1850	2193	602	995	1868	20,445	3705	13,378
1851	2258	760	869	1869	19,271	3624	13,986
1852	2639	996	1020	1870	19,171	3273	13,321
1853	2673	901	958	1871	19,472	3366	13,033
1854	3324	868	1902	1872	18,246	3090	13,590
1855	4435	906	2024	1873	20,414	3248	12,864
1856	4960	1024	2502	1874	21,602	3181	13,599
1857	4771	1010	2910				

The totals for the period covered by the table were as follows: Applications filed, 268,861; caveats filed, 49,588; patents issued, 170,791. The Commissioner of Patents says in the *Official Gazette:* "The business of the office for 1874 presents several interesting features. From the above statement it will be seen that, notwithstanding the general prostration of business, a larger number of applications was received during the year 1874 than in any preceding year, and a larger number of patents was granted than in any year before, with the exception of 1869. It also appears that 2561 applications were allowed, but patents were not issued because the final fee was not paid within six months, as the law requires. If this number be added to the number of patents issued, it will be seen that of the 21,602 applications filed during the year, 16,160 were allowed, leaving only a little more than one-fourth of the entire number of applications finally rejected. The fact that nearly three-fourths of the applications were decided favorably to the petitioners is a sufficient answer to the inconsiderate charge sometimes made of illiberality on the part of the officials of the patent office."

UNITED STATES CENTENNIAL INTERNATIONAL EXHIBITION,

FAIRMOUNT PARK, PHILADELPHIA, 1876.

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Financial Agent.—Hon. Wm. Bigler.

Engineers and Architects.—Henry Pettit, Jos. M. Wilson, H. J. Schwarzmann.

OFFICERS AND MEMBERS OF THE WOMEN'S CENTENNIAL EXECUTIVE COMMITTEE.

President.—Mrs. E. D. Gillespie.

Vice-President.—Mrs. John Sanders.

Secretary.—Mrs. Frank M. Etting.

Treasurer.—Mrs. Crawford Arnold.

Members.—Mrs. John W. Forney, Mrs. Richard P. White, Mrs. Henry Cohen, Mrs. Aubrey H. Smith, Mrs. Matthew Simpson, Mrs. Emily R. Buckman, Mrs. A. H. Franciscus, Miss Elizabeth Gratz, Miss McHenry, Mrs. L. C. Hughes, Mrs. H. C. Caldwell, Mrs. Fred'k MacCrellish, Mrs. M. E. P. Bouligny, Mrs. J. M. Washburne, Mrs. Ellen Call Long, Mrs. Jourdain Westmoreland, Mrs. F. R. West, Mrs. W. I. Hill, Mrs. W. T. Rand, Mrs. W. L. Challis, Mrs. M. C. Ludeling, Mrs. Bion Bradbury, Mrs. James T. Fields, Mrs. K. S. Minor, Mrs. S. B. Bowen, Mrs. W. L. Dayton, Mrs. Edward F. Noyes, Mrs. F. W. Goddard, Mrs. M. J. Young, Mrs. C. J. Faulkner, Mrs. J. B. Thorp, Mrs. Eliza R. Snow.

THE ACT CREATING THE UNITED STATES CENTENNIAL COMMISSION.

An Act to provide for celebrating the One Hundredth Anniversary of American Independence by holding an International Exhibition of Arts, Manufactures and Products of the Soil and Mine in the City of Philadelphia and State of Pennsylvania, in the year eighteen hundred and seventy-six.

Whereas, the Declaration of Independence of the United States of America was prepared, signed and promulgated in the year seventeen hundred and seventy-six, in the city of Philadelphia; and whereas it behooves the people of the United States to celebrate by appropriate ceremonies the centennial anniversary of this memorable and decisive event, which constituted the fourth day of July, Anno Domini seventeen hundred and seventy-six, the birthday of the nation; and whereas it is deemed fitting that the completion of the first century of our national existence shall be commemorated by an exhibition of the natural resources of the country and their development, and of its progress in those arts which benefit mankind, in comparison with those of older nations; and whereas no place is so appropriate for such an exhibition as the city in which occurred the event it is designed to commemorate; and whereas, as the exhibition should be a national celebration, in which the people of the whole country should participate, it should have the sanction of the Congress of the United States: therefore,

Section 1. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That an exhibition of American and foreign arts, products and manufactures shall be held, under

the auspices of the government of the United States, in the city of Philadelphia, in the year eighteen hundred and seventy-six.

SECT. 2. That a commission, to consist of not more than one delegate from each State and from each Territory of the United States, whose functions shall continue until the close of the exhibition, shall be constituted, whose duty it shall be to prepare and superintend the execution of a plan for holding the exhibition, and, after conference with the authorities of the city of Philadelphia, to fix upon a suitable site within the corporate limits of the said city, where the exhibition shall be held.

SECT. 3. That said Commissioners shall be appointed within one year from the passage of this act, by the President of the United States, on the nomination of the governors of the States and Territories respectively.

SECT. 4. That in the same manner there shall be appointed one Commissioner from each State and Territory of the United States, who shall assume the place and perform the duties of such Commissioner and Commissioners as may be unable to attend the meetings of the Commission.

SECT. 5. That the Commission shall hold its meetings in the city of Philadelphia, and that a majority of its members shall have full power to make all needful rules for its government.

SECT. 6. That the Commission shall report to Congress, at the first session after its appointment, a suitable date for opening and for closing the exhibition; a schedule of appropriate ceremonies for opening or dedicating the same; a plan or plans of the buildings; a complete plan for the reception and classification of articles intended for exhibition; the requisite custom-house regulations for the introduction into this country of the articles from foreign countries intended for exhibition; and such other matters as in their judgment may be important.

SECT. 7. That no compensation for services shall be paid to the Commissioners or other officers provided by this act from the Treasury of the United States; and the United States shall not be liable for any expenses attending such exhibition, or by reason of the same.

SECT. 8. That whenever the President shall be informed by the governor of the State of Pennsylvania that provision has been made for the erection of suitable buildings for the purpose, and for the exclusive control by the Commission herein provided for of the proposed exhibition, the President shall, through the Department of State, make proclamation of the same, setting forth the time at which the exhibition will open and the place at which it will be held; and he shall communicate to the diplomatic representatives of all nations copies of the same, together with such regulations as may be adopted by the Commissioners, for publication in their respective countries.

Approved March 3, 1871.

EXTRACTS FROM THE ACT CREATING THE CENTENNIAL BOARD OF FINANCE.

An Act relative to the Centennial International Exhibition to be held in the City of Philadelphia, State of Pennsylvania, in the year eighteen hundred and seventy-six.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby created a body corporate, to be known by the name of the Centennial Board of Finance, and by that name to have an incorporate existence until the object for which it is formed shall have been accomplished; and it shall be competent to sue and be sued, plead and be impleaded, defend and be defended, in all courts of law and equity in the United States; and may make and have a corporate seal, and may purchase, take, have and hold, and may grant, sell and at pleasure dispose of all such real and personal estate as may be required in carrying into effect the provisions of an act of Congress entitled, "An Act to provide for celebrating the one hundredth anniversary of American Independence by holding an International Exhibition of arts and manufactures, and products of the soil and mine, in the City of Philadelphia and State of Pennsylvania, in the year eighteen hundred and seventy-six," approved March third, eighteen hundred and seventy-one, and all acts supplementary thereto; and said Centennial Board of Finance shall consist of the following-named persons, their associates and successors, from the States and Territories as herein set forth.

[Here follows the list of corporators, two for each Congressional District and four for each State and Territory at large.]

SECT. 2. That the said corporation shall have authority, and is hereby empowered, to secure subscriptions of capital stock to an amount not exceeding ten million dollars, to be divided into shares of ten dollars each, and to issue to the subscribers of said stock certificates therefor under the corporate seal of said corporation, which certificates shall bear the signature of the president and treasurer, and be transferable under such rules and regulations as may be made for the purpose. And it shall be lawful for any municipal or other corporate body existing by or under the laws of the United States, to subscribe and pay for shares of said capital stock; and all holders of said stock shall become associates in said corporation, and shall be entitled to one vote on each share. And it shall be the duty of the United States Centennial Commission to prescribe rules to enable absent stockholders to vote by proxy. The proceeds of said stock, together with the receipts from all other sources, shall be used by said corporation for the erection of suitable buildings, with their appropriate fixtures and appurtenances, and for all other expenditures required in carrying out the objects of the said act of Congress of March third, eighteen hundred and seventy-one, and which may be incident thereto. And the said corporation

shall keep regular minutes of its proceedings, and full accounts, with the vouchers thereof, of all the receipts and expenditures, and the same shall be always open to the inspection of the United States Centennial Commission, or any member thereof.

SECT. 8. That the Centennial Board of Finance shall have authority to issue bonds, not in excess of its capital stock, and secure the payment of the same, principal and interest, by mortgage upon its property and prospective income.

SECT. 9. That it shall be the duty of the Secretary of the Treasury of the United States, as soon as practicable after the passage of this act, to cause to be prepared, in accordance with a design approved by the United States Centennial Commission and the Secretary of the Treasury, a sufficient number of certificates of stock to meet the requirements of this act; and any person found guilty of counterfeiting or attempting to counterfeit, or knowingly circulating false certificates of stock herein authorized, shall be subject to the same pains and penalties as are or may be provided by law for counterfeiting United States currency; but nothing in this act shall be so construed as to create any liability of the United States, direct or indirect, for any debt or obligation incurred, nor for any claim by the Centennial International Exhibition, or the corporation hereby created, for aid or pecuniary assistance from Congress or the Treasury of the United States, in support or liquidation of any debts or obligations created by the corporation herein authorized: *And provided*, That nothing in this act shall be so construed as to override or interfere with the laws of any State; and all contracts made in any State for the purposes of the Centennial International Exhibition shall be subject to the laws thereof: *And provided further*, That no member of said Centennial Board of Finance assumes any personal liability for any debt or obligation which may be created or incurred by the corporation authorized by this act.

SECT. 10. That as soon as practicable after the said exhibition shall have been closed, it shall be the duty of said corporation to convert its property into cash, and after the payment of all its liabilities to divide its remaining assets among its stockholders, *pro rata*, in full satisfaction and discharge of its capital stock. And it shall be the duty of the United States Centennial Commission to supervise the closing up of the affairs of said corporation, to audit its accounts and submit, in a report to the President of the United States, the financial results of the Centennial Exhibition.

Approved June 1, 1872.

PROCLAMATION BY THE PRESIDENT OF THE UNITED STATES.

Whereas, by the act of Congress approved March third, eighteen hundred and seventy-one, providing for a national celebration of the one hun-

dredth anniversary of the independence of the United States by the holding of an International Exhibition of arts, manufactures and products of the soil and mine in the city of Philadelphia, in the year eighteen hundred and seventy-six, it is provided as follows:

"That whenever the President shall be informed by the governor of the State of Pennsylvania that provision has been made for the erection of suitable buildings for the purpose, and for the exclusive control by the Commission herein provided for of the proposed exhibition, the President shall, through the Department of State, make proclamation of the same, setting forth the time at which the exhibition will open and the place at which it will be held; and he shall communicate to the diplomatic representatives of all nations copies of the same, together with such regulations as may be adopted by the Commissioners, for publication in their respective countries;"

And whereas His Excellency the governor of the said State of Pennsylvania did, on the twenty-fourth day of June, eighteen hundred and seventy-three, inform me that provision has been made for the erection of said buildings and for the exclusive control by the Commission provided for in the said act of the proposed exhibition;

And whereas the president of the United States Centennial Commission has officially informed me of the dates fixed for the opening and closing of the said exhibition, and the place at which it is to be held:

Now, therefore, be it known that I, Ulysses S. Grant, President of the United States, in conformity with the provisions of the act of Congress aforesaid, do hereby declare and proclaim that there will be held at the city of Philadelphia, in the State of Pennsylvania, an International Exhibition of arts, manufactures and products of the soil and mine, to be opened on the nineteenth day of April, Anno Domini eighteen hundred and seventy-six, and to be closed on the nineteenth day of October, in the same year.

And in the interest of peace, civilization and domestic and international friendship and intercourse, I commend the celebration and exhibition to the people of the United States; and in behalf of this Government and people, I cordially commend them to all nations who may be pleased to take part therein.

In testimony whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington, this third day of July, one
[SEAL] thousand eight hundred and seventy-three, and of the Independence of the United States the ninety-seventh.

U. S. GRANT.

By the President:

HAMILTON FISH, *Secretary of State.*

NOTE TO FOREIGN MINISTERS IN THE UNITED STATES.

DEPARTMENT OF STATE, WASHINGTON, *July* 5, 1873.

SIR:—I have the honor to enclose, for the information of the government of ———, a copy of the President's proclamation, announcing the time and place of holding an International Exhibition of arts, manufactures and products of the soil and mine, proposed to be held in the year eighteen hundred and seventy-six.

The exhibition is designed to commemorate the declaration of the independence of the United States on the one hundredth anniversary of that interesting and historic national event, and at the same time present a fitting opportunity for such display of the results of arts and industry of all nations as will serve to illustrate the great advances attained and the successes achieved in the interest of progress and civilization during the century which will have then closed.

In the law providing for the holding of the exhibition Congress directed that copies of the proclamation of the President setting forth the time of its opening and the place at which it was to be held, together with such regulations as might be adopted by the Commissioners of the exhibition, should be communicated to the diplomatic representatives of all nations. Copies of those regulations are herewith transmitted.

The President indulges the hope that the government of ——— will be pleased to notice the subject and may deem it proper to bring the exhibition and its objects to the attention of the people of that country, and thus encourage their co-operation in the proposed celebration. And he further hopes that the opportunity afforded by the exhibition for the interchange of national sentiment and friendly intercourse between the people of both nations may result in new and still greater advantages to science and industry, and at the same time serve to strengthen the bonds of peace and friendship which already happily subsist between the government and people of ——— and those of the United States.

I have the honor to be, sir, with the highest consideration,

Your obedient servant,

HAMILTON FISH, *Secretary of State.*

INVITATION TO FOREIGN GOVERNMENTS.

Whereas, at various international exhibitions which have been held in foreign countries, the United States have been represented in pursuance of invitations given by the governments of those countries and accepted by our government, therefore,

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President be requested to extend, in the name of the United States, a respectful and cordial invitation to the governments of other nations to be represented and take part

in the International Exposition to be held at Philadelphia under the auspices of the government of the United States, in the year eighteen hundred and seventy-six; *Provided, however,* That the United States shall not be liable, directly or indirectly, for any expenses attending such exposition or by reason of the same.

Approved June 5, 1874.

GENERAL REGULATIONS FOR EXHIBITORS IN THE UNITED STATES.

1. The exhibition will be held at Fairmount Park, in the city of Philadelphia, and will be opened on the 10th day of May, 1876, and closed on the 10th day of November following. The seven departments of the classification which will determine the relative location of articles in the exposition, except in such collective exhibitions as may receive special sanction, and also the arrangement of names in the catalogue, are as follows: I. *Mining;* II. *Manufactures;* III. *Education and Science;* IV. *Art;* V. *Machinery;* VI. *Agriculture;* VII. *Horticulture.* 2. Applications for space and negotiations relative thereto should be addressed to the Director-General, International Exhibition, Philadelphia, Penn. 3. Exhibitors will not be charged for space. A limited quantity of steam- and water-power will be supplied gratuitously. The quantity of each will be settled definitively at the time of the allotments of space. Any power required by the exhibitor in excess of that allowed will be furnished by the Commission at a fixed price. Demands for such excess of power must also be settled at the time of the allotment of space. 4. Exhibitors must provide, at their own cost, all show-cases, shelving, counters, fittings, etc., which they may require, and all countershafts, with their pulleys, belting, etc., for the transmission of power from the main shafts in the Machinery Hall. All arrangements of articles and decorations must be in conformity with the general plan adopted by the Director-General. Special constructions of any kind, whether in the buildings or grounds, can only be made upon the written approval of the Director-General. 5. The Commission will take precautions for the safe preservation of all objects in the exhibition, but it will in no way be responsible for damage or loss of any kind or for accidents by fire or otherwise, however originating. Favorable facilities will be arranged by which exhibitors may insure their own goods. 6. Exhibitors may employ watchmen of their own choice to guard their goods during the hours the exhibition is open to the public. Appointments of such watchmen will be subject to the approval of the Director-General. 7. Exhibitors, or such agents as they may designate, shall be responsible for the receiving, unpacking and arrangement of objects, as well as for their removal at the close of the exhibition. 8. The transportation, receiving, unpacking and arranging of the products for exhibition will be at the

expense of the exhibitor. 9. The installation of heavy articles requiring foundations should, by special arrangement, be begun as soon as the progress of the work upon the buildings will permit. The general reception of articles at the exhibition buildings will be commenced on January 1, 1876, and no articles will be admitted after March 31, 1876. 10. Space not occupied on the 1st of April, 1876, will revert to the Director-General for reassignment. 11. If products are not intended for competition, it must be so stated by the exhibitor, and they will be excluded from the examination by the international juries. 12. If no authorized person is at hand to receive goods on their arrival at the exhibition building, they will be removed without delay, and stored at the cost and risk of whomsoever it may concern. 13. Articles that are in any way dangerous or offensive, also patent medicines, nostrums and empirical preparations whose ingredients are concealed, will not be admitted to the exhibition. 14. The removal of goods will not be permitted prior to the close of the exhibition. 15. Sketches, drawings, photographs or other reproductions of articles exhibited will only be allowed upon the joint assent of the exhibitor and the Director-General, but views of portions of the building may be made upon the Director-General's sanction. 16. Immediately after the close of the exhibition exhibitors shall remove their effects, and complete such removal before December 31, 1876. Goods then remaining will be removed by the Director-General and sold for expenses, or otherwise disposed of under the direction of the Commission. 17. Each person who becomes an exhibitor thereby acknowledges and undertakes to keep the rules and regulations established for the government of the exhibition. Special regulations will be issued concerning the exhibition of fine arts, the organization of international juries, awards of prizes, the sale of special articles within the buildings and on other points not touched upon in these preliminary instructions, and an official catalogue will be published.

GENERAL REGULATIONS FOR FOREIGN EXHIBITORS.

1. The exhibition will be held at Fairmount Park, in the city of Philadelphia, and will be opened on the 10th day of May, 1876, and closed on the 10th day of November following. 2. All governments have been invited to appoint commissions for the purpose of organizing their departments of the exhibition. The Director-General should be notified of the appointment of such foreign commissions before January 1, 1875. Full diagrams of the buildings and grounds will be furnished to the foreign commissions on or before February 1, 1875, indicating the localities to be occupied by each nation, subject, however, to revision and readjustment. 3. Applications for space and negotiations relative thereto must be conducted with the commission of the country where the article is produced. 4. Foreign commissions are requested to notify the Director-General not

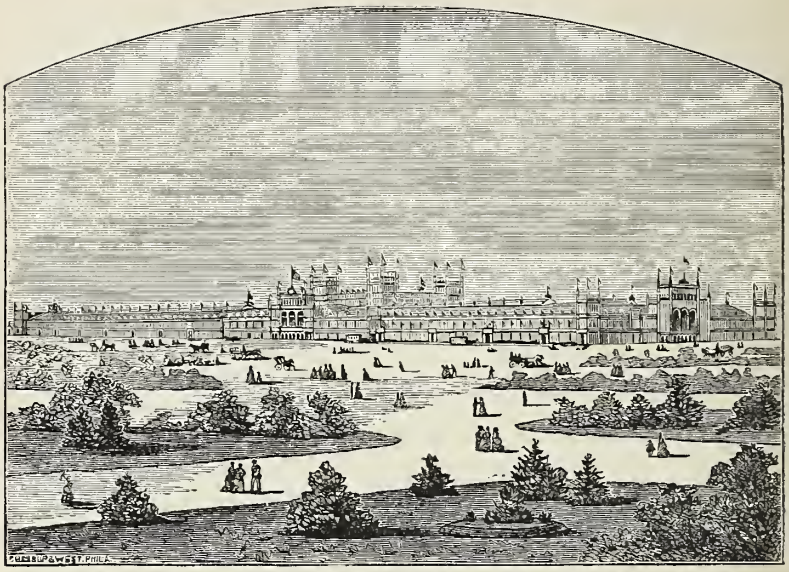
later than May 1, 1875, whether they desire any increase or diminution of the space offered them, and the amount. 5. Before December 1, 1875, the foreign commissions must furnish the Director-General with approximate plans showing the manner of allotting the space assigned to them, and also with lists of their exhibitors and other information necessary for the preparation of the official catalogue. Products brought into the United States at the ports of New York, Boston, Portland, Me., Burlington, Vt., Suspension Bridge, N. Y., Detroit, Port Huron, Mich., Chicago, Philadelphia, Baltimore, Norfolk, New Orleans and San Francisco, intended for display at the International Exhibition, will be allowed to go forward to the exhibition buildings, under proper supervision of customs officers, without examination at such ports of original entry, and at the close of the exhibition will be allowed to go forward to the port from which they are to be exported. No duties will be levied upon such goods unless entered for consumption in the United States. 6. The transportation, receiving, unpacking and arranging of the products for exhibition will be at the expense of the exhibitor. 7. The installation of heavy articles requiring special foundations or adjustments should, by special arrangement, begin as soon as the progress of the work upon the buildings will permit. The general reception of articles at the exhibition buildings will commence on January 1, 1876, and no articles will be admitted after March 31, 1876. 8. Space assigned to foreign commissions and not occupied on the 1st of April, 1876, will revert to the Director-General for reassignment. 9. If products are not intended for competition, it must be so stated by the exhibitor, and they will be excluded from the examination by the international juries. 10. The seven departments of the classification which will determine the relative location of articles in the exhibition, except in such collective exhibitions as may receive special sanction, and also the arrangement of names in the catalogue, are as follows: I. *Mining.* II. *Manufactures.* III. *Education and Science.* IV. *Art.* V. *Machinery.* VI. *Agriculture.* VII. *Horticulture.* 11. Foreign commissions may publish catalogues of their respective sections. 12. Exhibitors will not be charged for space. A limited quantity of steam- and water-power will be supplied gratuitously. The quantity of each will be settled definitively at the time of allotment of space. Any power required by the exhibitor in excess of that allowed will be furnished by the Centennial Commission at a fixed price. Demands for such excess of power must also be settled at the time of the allotment of space. 13. Exhibitors must provide at their own cost all show-cases, shelving, counters, fittings, etc., which they may require, and all countershafts, with their pulleys, belting, etc., for the transmission of power from the main shafts in the Machinery Hall. All arrangements of articles and decorations must be in conformity with the general plan adopted by the Director-Gen-

eral. Special constructions of any kind, whether in the buildings or grounds, can only be made upon the written approval of the Director-General. The Centennial Commission will take precautions for the safe preservation of all objects in the exhibition, but it will in no way be responsible for damage or loss of any kind, or for accidents by fire or otherwise, however originating. 14. Favorable facilities will be arranged by which exhibitors or foreign commissions may insure their own goods. 15. Foreign commissions may employ watchmen of their own choice to guard their goods during the hours the exhibition is open to the public. Appointments of such watchmen will be subject to the approval of the Director-General. Foreign commissions, or such agents as they may designate, shall be responsible for the receiving, unpacking and arrangement of objects, as well as for their removal at the close of the exhibition; but no person shall be permitted to act as such agent until he can give to the Director-General written evidence of his having been approved by the proper commission. 16. Each package must be addressed "To the commission for [*name of country*] at the International Exhibition of 1876, Philadelphia, United States of America," and should at least have two labels affixed to different but not opposite sides of each case, and giving the following information: 17. (1) The country from which it comes; (2) name or firm of the exhibitor; (3) residence of the exhibitor; (4) department to which objects belong; (5) total number of packages sent by that exhibitor; (6) serial number of that particular package. 18. Within each package should be a list of all objects. 19. If no authorized person is at hand to receive goods on their arrival at the exhibition building, they will be removed without delay, and stored at the cost and risk of whomsoever it may concern. 20. Articles that are in any way dangerous or offensive, also patent medicines, nostrums and empirical preparations whose ingredients are concealed, will not be admitted to the exhibition. 21. The removal of goods will not be permitted prior to the close of the exhibition. 22. Sketches, drawings, photographs or other reproductions of articles exhibited will only be allowed upon the joint assent of the exhibitor and the Director-General; but views of portions of the building may be made upon the Director-General's sanction. 23. Immediately after the close of the exhibition exhibitors shall remove their effects, and complete such removal before December 31, 1876. Goods then remaining will be removed by the Director-General and sold for expenses, or otherwise disposed of under the direction of the Centennial Commission. 24. Each person who becomes an exhibitor thereby acknowledges and undertakes to keep the rules and regulations established for the government of the exhibition. Special regulations will be issued concerning the exhibition of fine arts, the organization of international juries, awards of prizes and sales of special articles within the buildings, and on other points not

touched upon in these preliminary instructions. 25. Communications concerning the Exhibition should be addressed to "The Director-geueral, International Exhibition, 1876, Philadelphia, Pa., U. S. A."

SPECIAL REGULATIONS GOVERNING THE EXHIBITION OF FINE ARTS.

1. The exhibition will be opened on the 10th day of May, 1876, and closed on the 10th day of November following. 2. Works of art will be admitted for exhibition, whether previously exhibited or not. 3. Applications for space and negotiations relative thereto must be conducted with the commission of the country of which the applicant is a citizen. 4. No charge will be made for space. 5. The admission of foreign works of art to the exhibition, except those referred to in Rule IX., will be left to the commissions appointed by the respective governments. 6. Foreign packages for this department must be marked "Art Department," and addressed to the commission for (name of country), International Exhibition, Philadelphia, U. S. A. 7. The works of foreign artists will be placed in the care of the commission of the country to which they belong. 8. Works of foreign artists belonging to residents of the United States will be admitted on the approval of the Committee of Selection for exhibition in a special gallery. 9. Foreign commissions will transmit to the Director-General, prior to March 1, 1876, iuformation concerning the works of art to be exhibited by their citizens that may be necessary for the preparation of the official catalogue. 10. The installation of works of art admitted to the exhibition will be under the supervision of the commissions of the country to which they belong. 11. All works of art must be of a high order of merit, and those produced by citizens of the United States will be admitted to the exhibition only on the approval of the Committee of Selection. 12. Packages forwarded by exhibitors in the United States for admission to this department must be marked "Art Department, International Exhibition, Philadelphia." There must be also attached to the outside and inside of each package a label giving the name and address of the exhibitor and the title and number of articles in the package. 13. All pictures, whether round or oval, should be placed in square frames. Excessive breadth in frames or projecting mouldings should be avoided. Shadow boxes will not be allowed to project more than one inch beyond the frame. Glass over oil paintings will not be permitted. 14. Works of art intended for sale will be so designated in the official catalogue. 15. All works of art must be in Philadelphia prior to April 1, 1876, and after having been admitted under the rules shall not be removed before the close of the exhibition. 16. Each person presenting works of art for admission thereby agrees to comply with the special rules established for this department and the general rules for the government of the exhibition.

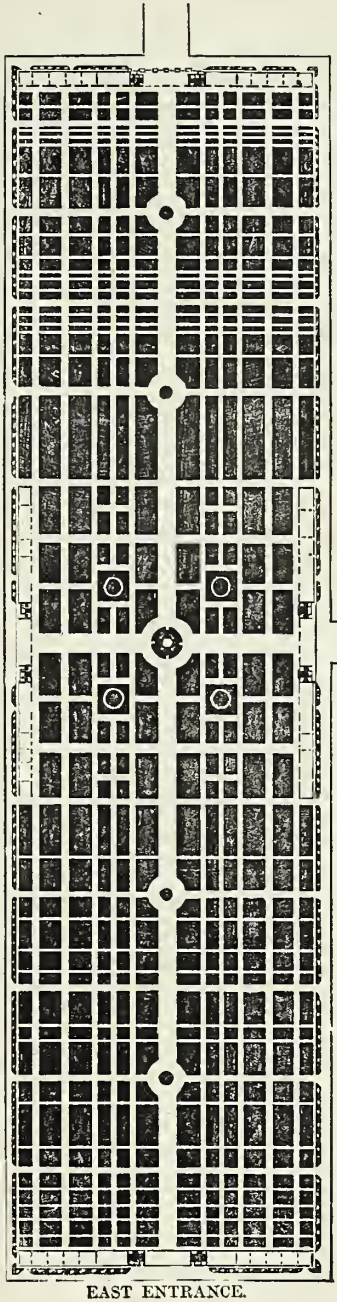


MAIN EXHIBITION BUILDING.

This building is in the form of a parallelogram, extending east and west 1880 feet in length and north and south 464 feet in width. The larger portion of the structure is one story in height, and shows the main cornice upon the outside at 45 feet above the ground, the interior height being 70 feet. At the centre of the longer sides are projections 416 feet in length, and in the centre of the shorter sides or ends of the building are projections 216 feet in length. In these projections, in the centre of the four sides, are located the main entrances, which are provided with arcades upon the ground floor and central façades extending to the height of 90 feet. The east entrance will form the principal approach for carriages, visitors being allowed to alight at the doors of the building under cover of the arcade. The south entrance will be the principal approach from street cars, the ticket offices being located upon the line of Elm avenue, with covered ways provided for entrance into the building itself. The main portal on the north side communicates directly with the Art Gallery, and the main portal on the west side gives the main passage-way to the Machinery and Agricultural Halls. Upon the corners of the building there are four towers 75 feet in height, and between the towers and the central projections or entrances there is a lower roof introduced showing a cornice at 24 feet above the ground. In order to obtain a central feature for the building as a whole, the roof over the central part, for 184 feet square, has been raised above the surrounding portion, and four towers, 48 feet square, rising to 120 feet in height, have been introduced at the corners of the elevated roof.

The areas covered are as follows: Ground floor, 872,320 square feet, or 20.02 acres; upper floors, in projections, 37,344 square feet, or .85 acres; upper floors in towers, 26,344 square feet, or .60 acres; total, 936,008 square feet, or 21.47 acres.

Ground Plan.—The general arrangement of the ground plan shows a central avenue or nave 120 feet in width and extending 1832 feet in length. This is the longest avenue of that width ever introduced into an exhibition building. On either side of this nave there is an avenue 100 feet by 1832 feet in length. Between the nave and side avenues are aisles 48 feet wide, and on the outer sides of the building smaller aisles 24 feet in width. In order to break the great length of the roof-lines, three cross avenues or transepts have been introduced of the same widths and in the same relative positions to each other as the nave and avenues running lengthwise—viz., a central transept 120 feet in width by 416 feet in length, with one on either side of 100 feet by 416 feet, and aisles between of 48 feet. The intersections of these avenues and transepts in the central portion of the building result in dividing the ground floor into nine open spaces free from supporting columns, and covering in the aggregate an area of 416 feet square. Four of these spaces are 100 feet square, four 100 feet by 120 feet, and the



GROUND PLAN OF MAIN EXHIBITION BUILDING.

central space or pavilion 120 feet square. The intersections of the 48 feet aisles produce four interior courts 48 feet square, one at each corner of the central space. The main promenades through the nave and central transept are each 30 feet in width, and those through the centre of the side avenues and transepts 15 feet each. All other walks are 10 feet wide and lead at either end to exit doors.

Dimensions.—(Measurements taken from centre to centre of supporting columns.) Length of building, 1880 feet; width of building, 464 feet. *Central Avenue or Nave.*—Length, 1832 feet; width, 120 feet; height to top of supporting columns, 45 feet; height to ridge of roof, 70 feet. *Central Transept.*—Length, 416 feet; width, 120 feet; height to top of columns, 45 feet; height to ridge of roof, 70 feet. *Side Avenues.*—Length, 1832 feet; width, 100 feet; height to top of columns, 45 feet; height to ridge of roof, 65 feet. *Side Transepts.*—Length, 416 feet; width, 100 feet; height to top of columns, 45 feet; height to ridge of roof, 65 feet. *Central Aisles.*—Length at east end, 744 feet; length at west end, 672 feet; width, 48 feet; height to roof, 30 feet. *Side Aisles.*—Length at east end, 744 feet; length at west end, 672 feet; width, 24 feet; height to roof, 24 feet. *Centre Space or Pavilion.*—Ground plan, 120 feet square; height to top of supporting columns, 72 feet; height to ridge of roof, 96 feet. *Towers over Courts.*—Ground plan, 48 feet square; height to roof, 120 feet. *Corner Towers.*—Ground plan, 24 feet square; height to roof, 75 feet.

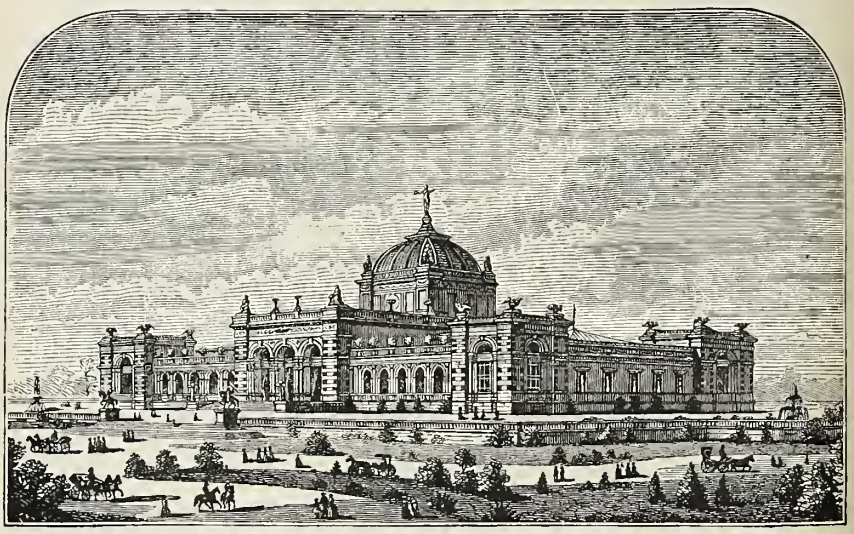
The foundations consist of piers of masonry. The superstructure is composed of wrought-iron columns which support wrought-iron roof-trusses. These columns are composed of rolled channel-bars with plates riveted to the flanges. Lengthwise of the building the columns are spaced at the uniform distance apart of 24 feet. In the entire structure there are 672 columns, the shortest being 23 feet and the longest 125 feet in length. Their aggregate weight is 2,200,000 pounds. The roof-trusses are similar in form to those in general use for dépôts and warehouses, and consist of straight rafters with struts and tie-bars. The aggregate weight of iron in the roof-trusses and girders is 5,000,000 pounds. This building being a temporary construction, the columns and trusses are so designed that they may be easily taken down and erected again at another site. The sides of the building for the height of seven feet from the ground are finished with brickwork in panels between the columns. Above the seven feet, with glazed sash. Portions of the sash are movable for ventilation. The roof-covering is of tin upon sheathing boards. The ground-flooring is of plank upon sills resting upon the ground, with no open space underneath. All the corners and angles of the building upon the exterior are accentuated by galvanized iron octagonal turrets which extend the full height of the building from the ground level to above the roof. These turrets at the corners of the towers are surmounted with flagstaffs, at other places with

the national eagle. The national standard with appropriate emblems is placed over the centre of each of the four main entrances. Over each of the side entrances is placed a trophy showing the national colors of the country occupying that part of the building. At the vestibules forming part of the four main entrances variegated brick and tile have been introduced. The building stands nearly due east and west, and is lighted almost entirely by side light from the north and south sides. Louvre ventilators are introduced over the central nave and each of the aveuues. Skylights are introduced over the central aisles. Small balconies or galleries of observation have been provided in the four central towers of the building at the heights of the different stories. These will form attractive places from which excellent views of the whole interior may be obtained. A complete system of water supply, with ample provision of fire-cocks, etc., is provided for protection against fire, and for sanitary purposes. Offices for foreign commissions are placed along the sides of the building in the side aisles, in close proximity to the products exhibited, as many of the 24 feet spaces being partitioned off for that purpose as may be required. Offices for the administration may be placed in the ends of the building aud on the second floor. The form of the building is such that all exhibitors will have an equally fair opportunity to exhibit their goods to advantage. There is comparatively little choice of location necessary, as the light is uniformly distributed and each of the spaces devoted to products is located upon one of the main thoroughfares. The departments of the classification will be placed in parallel sections running lengthwise of the building, from east to west, and will be wider or narrower in proportion to the bulk of the articles exhibited. The countries exhibiting will be located geographically, in sections running crosswise of the building, from north to south.

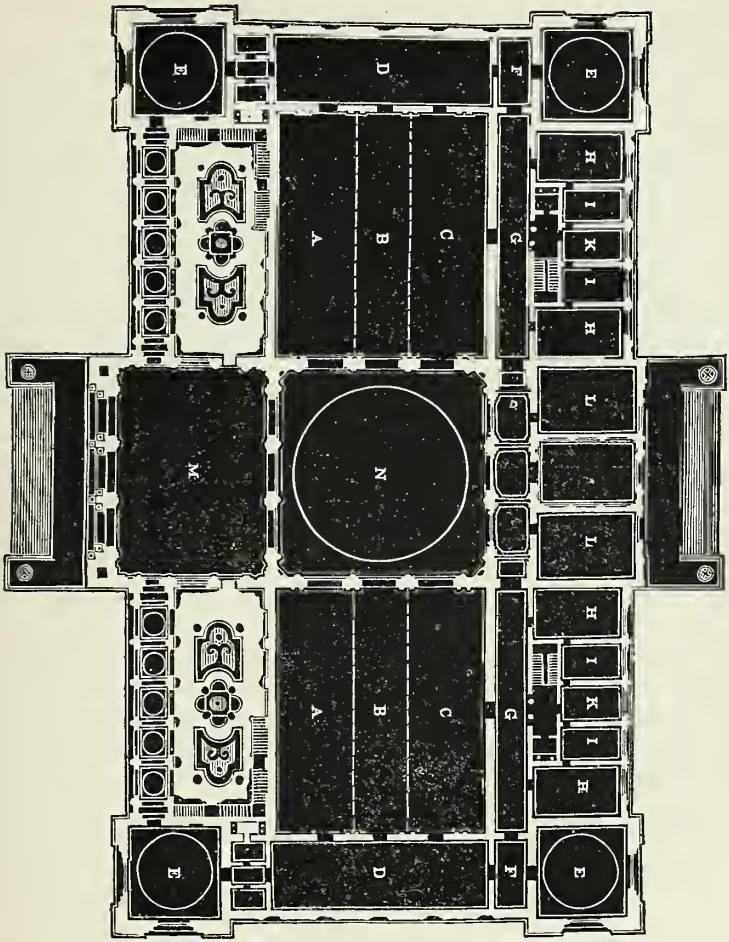
ART GALLERY.

This structure, which is one of the affixes to the great exhibition, is located on a line parallel with and northward of the Main Exhibition Building. It is on the most commandiug portion of great Lansdowne plateau, and looks southward over the city. It is elevated on a terrace six feet above the general level of the plateau, the plateau itself beiug an eminence 116 feet above the surface of the Schuylkill River. The entire structure is in the modern Renaissance. The materials are granite, glass and iron. No wood is used in the construction, and the building is thoroughly fireproof. The structure is 365 feet in length, 210 feet in width and 59 feet in height, over a spacious basement 12 feet in height, surmounted by a dome. *Exterior*—1. *The Main Front.*—The main front looks southward; it displays three distinctive features: 1. A main entrance in the ceutre of the structure, consisting of three colossal arched doorways of equal dimensions. 2. A pavilion at each end. 3. Two arcades connecting the pavil-

ions with the centre; central section, 95 feet long, 72 feet high; pavilions, 45 feet long, 60 feet high; arcades, each, 90 feet long, 40 feet high. The front or south face of the central section displays a rise of thirteen steps to the entrance, 70 feet wide. The entrance is by three arched doorways, each 40 feet high and 15 feet wide, opening into a hall. Between the arches of the doorways are clusters of columns terminating in emblematic designs illustrative of science and art. The doors, which are of iron, are relieved by bronze panels, having the coats-of-arms of all the States and Territories. In the centre of the main frieze is the United States coat-of-arms. The main cornice is surmounted by a balustrade with candelabras. At either end is an allegorical figure representing science and art. The dome rises from the centre of the structure to the height of 150 feet from the



ground. It is of glass and iron, and of a unique design; it terminates in a colossal bell, from which the figure of Columbia rises with protecting hands. A figure of colossal size stands at each corner of the base of the dome. These figures typify the four quarters of the globe. Each pavilion displays a window 30 feet high and 12 feet wide; it is also ornamented with tile-work, wreaths of oak and laurel, 13 stars in the frieze and a colossal eagle at each of its four corners. The arcades, a general feature in the old Roman villas, but entirely novel here, are intended to screen the long walls of the gallery. These each consist of five groined arches. These arcades form promenades looking outward over the grounds and inward over open gardens, which extend back to the main wall of the building. These garden-plats are each 90 feet long and 36 feet deep, ornamented in



GROUND PLAN OF ART GALLERY.

REFERENCES.

WALL SPACE.

A	South Halls	8680 sq. ft.
B	Middle Halls	7760 "
C	North Halls	8534 "
D	End Galleries	8248 "
E	Pavilions	7658 "
F	End Rooms of Corridor	2796 "
G	Corridors	7408 "
H	Rooms (north)	8044 sq. ft.
I	Rooms "	5348 "
K	Rooms "	2612 "
L	Reception Rooms	4894 "

FLOOR SPACE.

M	Reception Hall	4956 "
N	Centre "	6833 "
E	Pavilions	5088 "

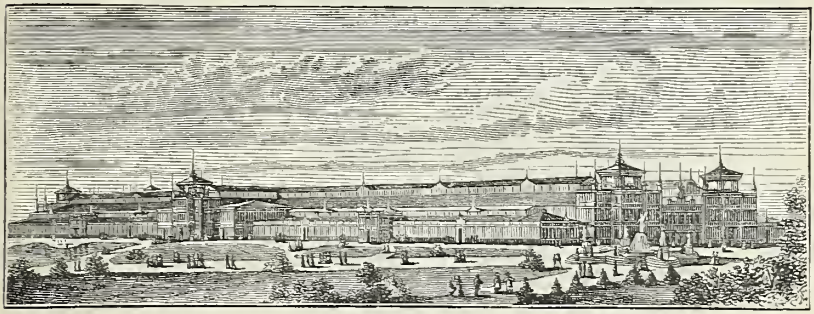
Height of Picture fastenings above floor line 23 feet 4 inches.
Galleries A, B, C, D, F, G, N, are lighted from above.
Rooms E, H, I, K, L, M, are lighted from the side.
Rooms H, I, K, are repeated in the second story, and are 14 feet from floor to ceiling throughout.
Height of Pavilions and Reception Hall 52 feet.
Height of Centre Hall 77 feet.

the centre with fountains and designed for the display of statuary. A stairway from the gardens reaches the upper line of these arcades, forming a second promenade, 35 feet above the ground. Its balustrade is ornamented with vases, and is designed ultimately for statues. The cornices, the atticas and the crestings throughout are highly ornamented. The walls of the east and west sides of the structure display the pavilions and the walls of the picture-galleries, and are relieved by five niches designed for statues; the frieze is richly ornamented; above it the central dome shows to great advantage. The rear or north front is of the same general character as the main front, but in place of the arcade is a series of arched windows, twelve in number, with an entrance in the centre; in all thirteen openings above, in an unbroken line, extending the entire length of the structure. Between the pavilions is the grand balcony—a promenade 275 feet long and 45 feet wide and elevated 40 feet above the ground, overlooking northward the whole panorama of the Park grounds. The main entrance opens on a hall 82 feet long, 60 feet wide and 53 feet high, decorated in the modern Renaissance style. On the farther side of this hall three doorways, each 16 feet wide and 25 feet high, open into the centre hall; this hall is 83 feet square, the ceiling of the dome rising over it 80 feet in height. From its east and west sides extend the galleries, each 98 feet long, 84 feet wide and 35 feet in height. These galleries admit of temporary divisions for the more advantageous display of paintings. The centre hall and galleries form one grand hall 287 feet long and 85 feet wide, capable of holding eight thousand persons—nearly twice the dimensions of the largest hall in the country. From the two galleries doorways open into two smaller galleries 28 feet wide and 89 feet long. These open north and south into private apartments which connect with the pavilion-rooms, forming two side galleries 210 feet long. Along the whole length of the north side of the main galleries and central hall extends a corridor 14 feet wide, which opens on its north line into a series of private rooms, thirteen in number, designed for studios and smaller exhibition-rooms. All the galleries and central hall are lighted from above; the pavilions and studios are lighted from the sides. The pavilions and central hall are designed especially for exhibitions of sculpture.

MACHINERY BUILDING.

This structure is located west of the intersection of Belmont and Elm avenues, at a distance of 542 feet from the west front of the Main Exhibition Building and 274 feet from the north side of Elm avenue. The north front of the building will be upon the same line as that of the Main Exhibition Building, thus presenting a frontage of 3824 feet from the east to the west end of the exhibition buildings upon the principal avenue within the grounds. The building consists of the main hall, 360 feet wide by

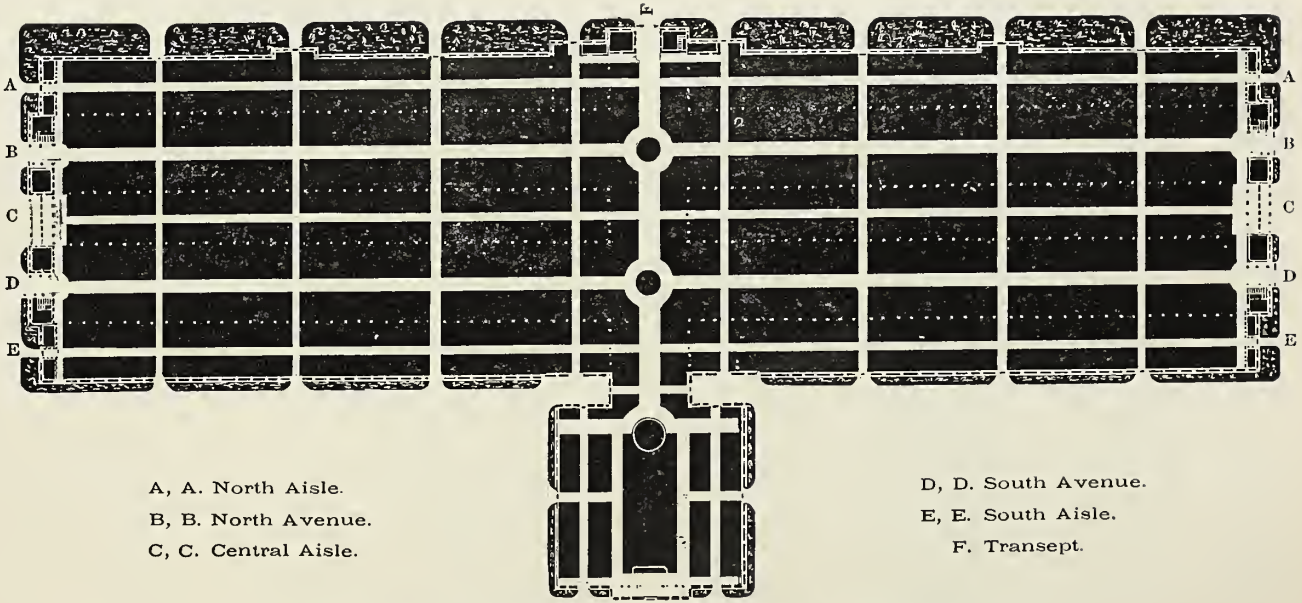
1402 feet long, and an annex on the south side of 208 feet by 210 feet. The entire area covered by the main hall and annex is 558,440 square feet, or 12.82 acres. Including the upper floors, the building provides 14



acres of floor space. The principal portion of the structure is one story in height, showing the main cornice upon the outside at 40 feet from the ground, the interior height to the top of the ventilators in the avenues being 70 feet and in the aisles 40 feet. To break the long lines upon the exterior, projections have been introduced upon the four sides, and the main entrances finished with façades, extending to 78 feet in height. The east entrance will form the principal approach from street-cars from the Main Exhibition Building and from the railroad dépôt. Along the south side will be placed the boiler-houses and such other buildings for special kinds of machinery as may be required. The west entrance affords the most direct communication with George's Hill, which point affords the best view of the entire exhibition grounds.

Ground Plan.—The arrangement of the ground plan shows two main avenues 90 feet wide by 1360 feet long, with a central aisle between and an aisle on either side. Each aisle is 60 feet in width; the two avenues and three aisles making the total width of 360 feet. At the centre of the building is a transept of 90 feet in width, which at the south end is prolonged beyond the main hall. This transept, beginning at 36 feet from the main hall and extending 208 feet, is flanked on either side by aisles of 60 feet in width, and forms the annex for hydraulic machines. The promenades in the avenues are 15 feet in width, in the transept 25 feet and in the aisles 10 feet. All other walks extending across the building are 10 feet in width, and lead at either end to exit doors.

Construction.—The foundations consist of piers of masonry. The superstructure consists of solid timber columns supporting roof trusses, constructed with straight wooden principals and wrought-iron ties and struts. As a general rule, the columns are placed lengthwise of the building, at the uniform distance apart of 16 feet. The columns are 40 feet high to the heel block of the 90-feet span roof trusses over the avenues,



A, A. North Aisle.
B, B. North Avenue.
C, C. Central Aisle.

D, D. South Avenue.
E, E. South Aisle.
F. Transept.

GROUND PLAN OF MACHINERY BUILDING.

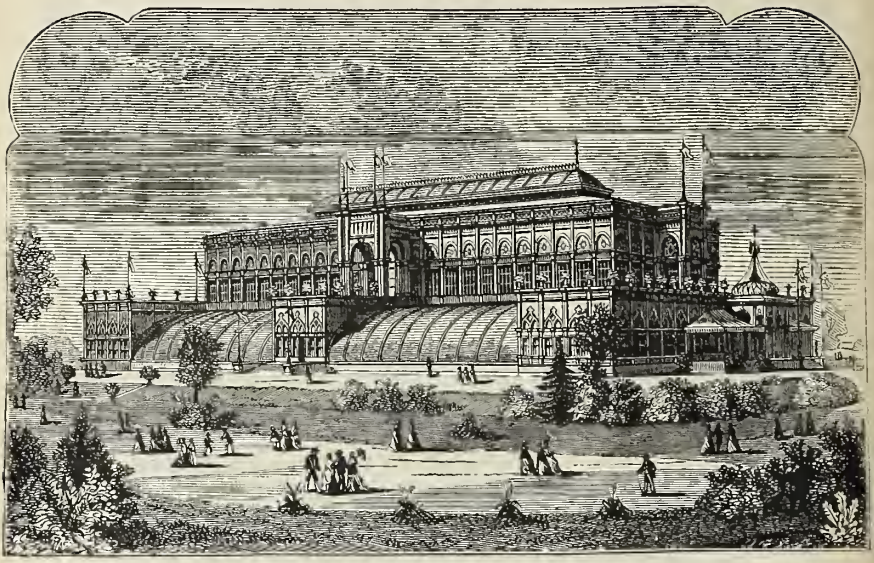
and they support the heel of the 60-feet spans over the aisles, at the height of 20 feet. The outer walls are built of masonry to a height of 5 feet, and above that are composed of glazed sash placed between the columns. Portions of the sash are movable for ventilation. Louvre ventilators are introduced in continuous lengths over both the avenues and the aisles. The building is lit entirely by side light, and stands lengthwise nearly east and west.

Shafting.—The building admits of the most complete system of shafting, the facilities in this respect being very superior. Eight main lines may be introduced, extending almost the entire length of the structure, and counter-shafts introduced into the aisles at any point. The hangers will be attached either to the wooden horizontal ties of the 60-feet span roof trusses or to brackets especially designed for the purpose, projecting from the columns, in either case at the height of 20 feet from the floor.

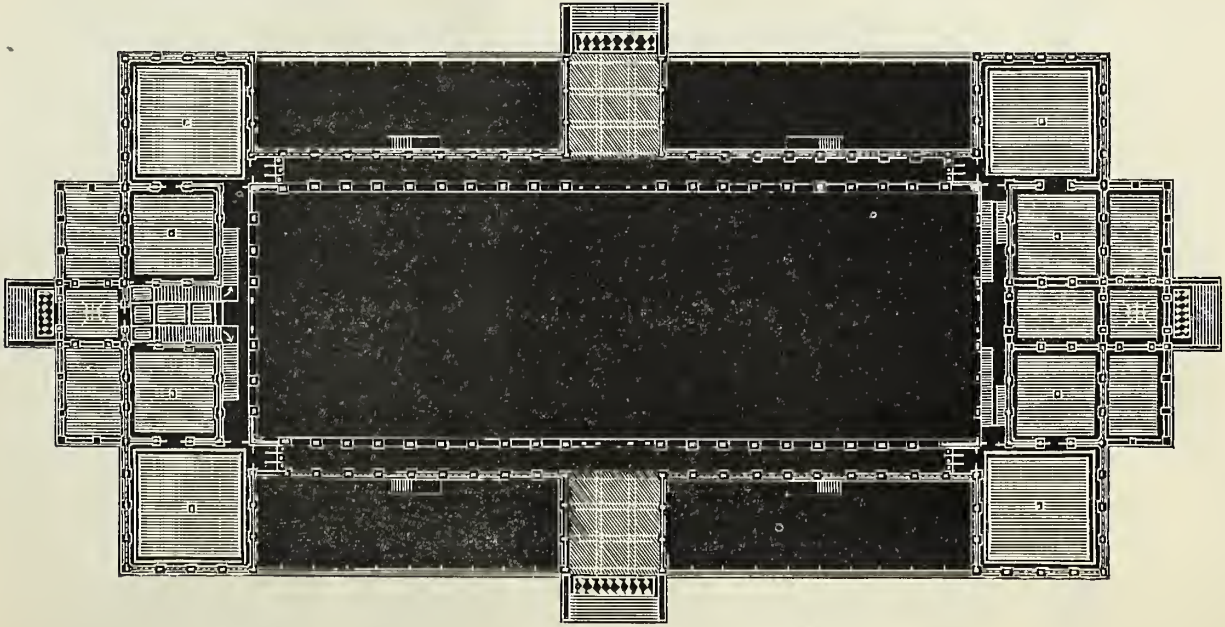
Hydraulic Annex.—The annex for hydraulic machines contains a tank 60 feet by 160 feet, with depth of water of 10 feet. In connection with this it is expected that hydraulic machinery will be exhibited in full operation. At the south end of this tank will be a waterfall 35 feet high by 40 feet wide, supplied from the tank by the pumps on exhibition.

HORTICULTURAL BUILDING.

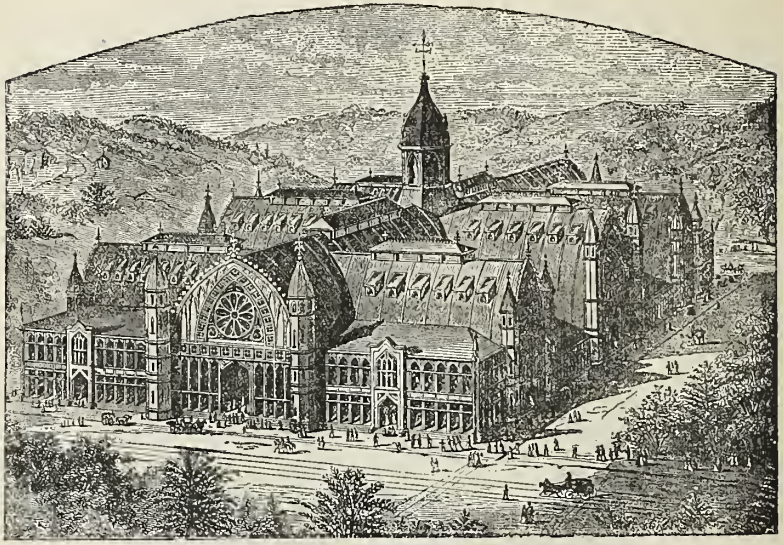
The liberal appropriations of the city of Philadelphia have provided the horticultural department of the exhibition with an extremely ornate and commodious building, which is to remain in permanence as an ornament of Fairmount Park. It is located on the Lansdowne terrace, a short distance north of the Main Building and Art Gallery, and has a commanding view of the Schuylkill River and the north-western portion of the city. The design is in the Mauresque style of architecture of the twelfth century, the principal materials externally being iron and glass. The length of the building is 383 feet, width 193 feet, and height to the top of the lantern 72 feet. The main floor is occupied by the central conservatory, 230 by 80 feet, and 55 feet high, surmounted by a lantern 170 feet long, 20 feet wide and 14 feet high. Running entirely around this conservatory at a height of 20 feet from the floor is a gallery 5 feet wide. On the north and south sides of this principal room are four forcing houses for the propagation of young plants, each of them 100 by 30 feet, covered with curved roofs of iron and glass. Dividing the two forcing houses in each of these sides is a vestibule 30 feet square. At the centre of the east and west ends are similar vestibules, on either side of which are the restaurants, reception-room, offices, etc. From the vestibules ornamental stairways lead to the internal galleries of the conservatory as well as to the four external galleries, each 100 feet long and 10 feet wide, which



surmount the roofs of the forcing houses. These external galleries are connected with a grand promenade, formed by the roofs of the rooms on the ground floor, which has a superficial area of 1800 square yards. The east and west entrances are approached by flights of blue marble steps from terraces 80 by 20 feet, in the centre of each of which stands an open kiosque 20 feet in diameter. The angles of the main conservatory are adorned with eight ornamental fountains. The corridors which connect the conservatory with the surrounding rooms open fine vistas in every direction. In the basement, which is of fireproof construction, are the kitchen, store-rooms, coal-houses, ash-pits, heating arrangements, etc.



GROUND PLAN OF HORTICULTURAL HALL.

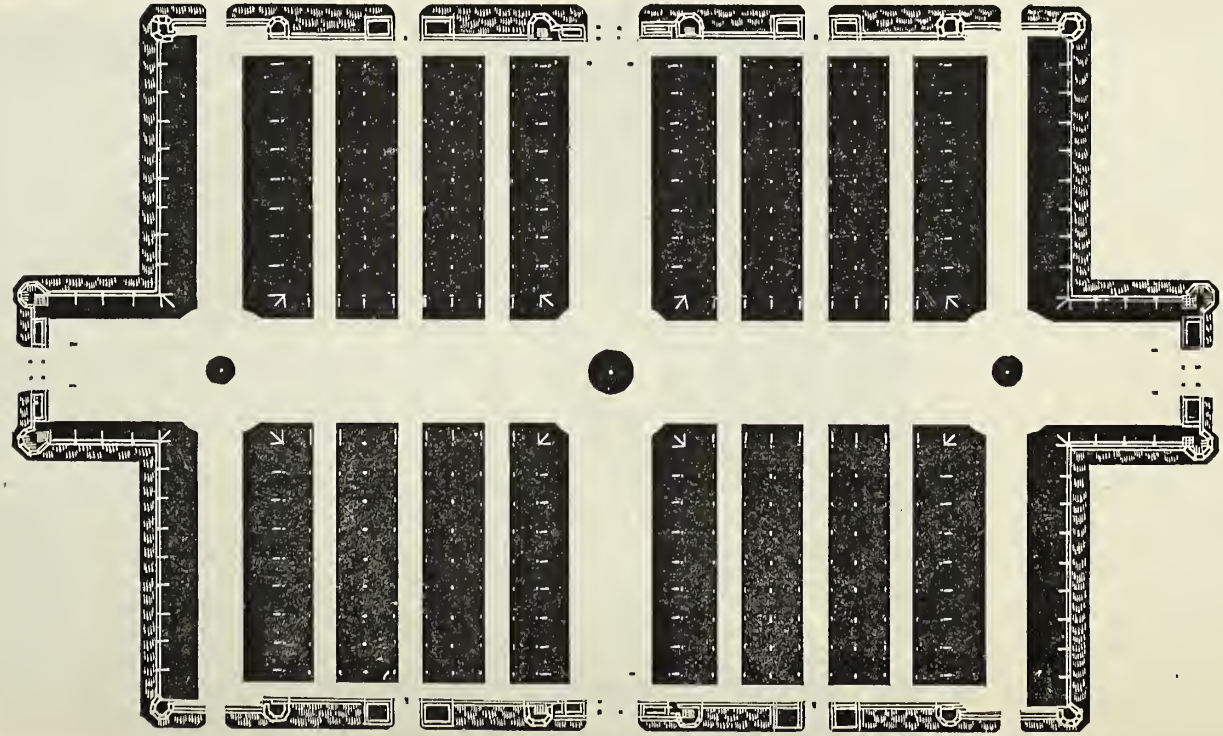


AGRICULTURAL BUILDING.

This structure will stand north of the Horticultural Building, and on the eastern side of Belmont avenue. It will illustrate a novel combination of materials, and is capable of erection in a few months. Its materials are wood and glass. It consists of a long nave crossed by three transepts, both nave and transept being composed of Howe truss arches of a Gothic form. The nave is 820 feet in length by 125 feet in width, with a height of 75 feet from the floor to the point of the arch. The central transept is of the same height and a breadth of 100 feet, the two end transepts 70 feet high and 80 feet wide. The four courts enclosed between the nave and transepts, and also the four spaces at the corners of the building, having the nave and end transepts for two of their sides, will be roofed and form valuable spaces for exhibits. Thus the ground plan of the building will be a parallelogram of 540 by 820 feet, covering a space of above ten acres. In its immediate vicinity will be the stock-yards for the exhibition of horses, cattle, sheep, swine, poultry, etc.

This comprehensive system of building—viz., Main Building, covering 21.47 acres; Art Gallery, covering 1.5 acres; Machinery Building, covering 14 acres; Horticultural Building, covering 1.5 acres; Agricultural Building, covering 10.15 acres—provides for the accommodation of the seven departments of the classification.

There will be required, in addition to these buildings, a number of smaller structures for the administration of the exhibition, all of which are now being designed, with a view to their early erection. The preparation of the grounds allotted to the Commission in Fairmount Park and the construc-



GROUND PLAN OF AGRICULTURAL HALL.



PLAN OF CENTENNIAL GROUNDS.

tion of the various buildings are far advanced, and will be vigorously urged forward. Although the erection of the buildings and the grading of the Park were not commenced until July, 1874, the progress made to this date ensures their timely completion on a scale and in a manner that will answer the requirements of the exhibition in every particular.

Besides the exhibition buildings proper, numerous applications have been made by manufacturers and by the commissions of foreign governments for permission to erect pavilions and various ornamental and useful structures within the exhibition grounds. A number of fountains, memorial statues and other decorative objects are in preparation under the auspices of local organizations. These adjuncts will add essentially to the attractions of the Park.

GROUNDS.

The fence-line of 16,000 feet, or over three miles, on which the fence is to be built during the month of May, encloses two hundred and thirty-six acres, which is exclusive of the stock-yards for the exhibition of horses, cattle, sheep, swine, etc.

Within this enclosure the principal structures have been grouped in the most economic, suitable and convenient positions. Facilities for transportation from distant points within the grounds will be provided, but the whole area will contain objects of interest throughout its entire length and breadth. The walks and roads throughout the grounds will have a total length of seven miles, and apart from the main exhibition building and its principal annexes, the entire surface intervening will be covered with the pavilions of States and nations, costly buildings (erected by individuals to display special exhibits), fountains, statues, vases and shrubbery, which, with a lake of pure water three acres in extent and the parterre of flowers of native and exotic plants surrounding the Horticultural Building and interspersed over the ground, will, with other features presented by the beautiful Park, afford an enchanting scene.

A careful survey of the grounds made it apparent that it was indispensable for the preservation of uninterrupted intercourse between the buildings, and that access might be obtained from one portion of the enclosure to another by the shortest lines, that the whole of the two ravines known as Lansdowne and Belmont should be included within the exhibition boundaries; and as this line will interrupt the travel on the Park road to Belmont, Chamouni and George's Hill, we have determined, with the assent of the Commissioners of Fairmount Park, to construct two bridges, crossing the ravines where they open into the Schuylkill, and by these to divert the road from Sweetbrier Vale along the river, and from thence to continue it on the north side of the exhibition line to a point where it will intersect the road now travelled.

Drainage.—A system of drainage for the buildings and grounds has been devised which will promote the convenience of the occupants and visitors and serve the purposes of utility and health.

Water.—As an abundant supply of water for all the purposes of the exhibition is indispensable, temporary pumping-works have been erected at the river Schuylkill for a supply of not less than 4,000,000 gallons per day for use within the exhibition enclosure, which will render it entirely independent for a full supply of this indispensable element.

Gas.—The trustees of the City Gas-Works have shown a just appreciation of the requirements of the exhibition and surrounding avenues for a supply of gas by making arrangements to lay their mains to Belmont

and Elm avenues, from which points it will be supplied in quantities desired by service-pipe within the enclosure.

Transportation.—It is a cause of congratulation that, whether as to materials for exhibition or visitors to the exhibition, the arrangements are as perfect for their approach as it is possible to have them. The steam roads which connect with the grounds of the exhibition connect also with the wharves in Philadelphia and all the railroads entering the city, so that from abroad or our own country no transshipments are required, and the approaches from the various parts of our extended city will be made equally convenient by many horse railroads and some of the steam roads, which will set down their passengers immediately at the entrance.

EXTRACTS FROM THE REPORT OF THE BOARD OF FINANCE OF APRIL 23, 1875.

Buildings and Grounds.—Within the year last past much progress has been made in the work of preparation of suitable buildings for the exhibition and the preparatory adaptation of the grounds. A contract has been made with Richard J. Dobbins for the erection and construction of the permanent "Memorial Building," to be used in 1876 as an Art Gallery, and for its final completion on the first day of January, 1876. This building, 365 feet in length, with a width of 210 feet, requires more time for its completion than the other structures, because of its permanent and massive character, the materials composing it being granite, iron, brick and glass. The first work in the excavation of the cellar was done on the 4th day of July, 1874, and the building at this time has assumed such proportions in its progress that all doubts of the ability of the contractor to perform the requirements of his agreement within the time allotted to him have been dispelled. The design is in the Renaissance style of architecture; and as its form rises day by day, enveloped in solid blocks of granite, hewn from the quarries of Virginia, New Hampshire and Maine, it fully meets the expectations of your Board, and those associated with them in its superintendence, as a graceful and appropriate memorial building of the great event, the memory of which it is intended to perpetuate. The undertaking required more work to be done in a shorter space of time than was ever accomplished on any building which can be reasonably compared with it. Time, however, in this instance, is of the essence of the contract; and Mr. Dobbins' progress thus far in its erection, with the accumulation of wrought material for the portion yet to be done, and facilities for transportation and building, give your Board, who are familiar with the details, the confidence expressed. The contract price of the building is $1,199,273, and the appropriation by the State of Pennsylvania and city of Philadelphia of $1,500,000 will be

sufficient to cover all the expenses for heating, terracing, lighting, extra work and unforeseen contingencies which may be developed in the progress of structure.

Main Building.—The Main or Industrial Building, 1880 feet in length and 464 feet in width, to be constructed with a frame of iron, was also awarded to Richard J. Dobbins in July, 1874. The foundations for this building, consisting of 672 stone piers, were built during the last autumn, and are ready to support the superstructure. The contract time for the completion of the building is January 1, 1876, and since the award the materials have been prepared in the mills, shops and glass-works, and quantities are now on the ground ready for use. Some idea of the large amount of material which enters into the requirements of a structure covering twenty acres may be formed from the statement that to complete it 3928 tons of iron must be rolled and fitted, 237,646 square feet of glass made and set, 1,075,000 square feet of tin roof sheeting (equal to $24\frac{5}{8}$ acres) welded and spread. This material has been prepared and made ready for use as fast as it could be handled on the ground. The work for erection commences with the present week. The agreement provides that the west wing of the building shall be erected by the first day of September, the east wing by the first day of October, the central pavilion and towers by November 1, 1875, and the whole building by January 1, 1876. It is possible and probable that the entire framework will be erected before the first day of September; and as the roofing, glazing, painting, flooring and finishing of the part first erected commences with the erection of the first spans, we have much confidence that the contractor will be able to anticipate the time fixed for the delivery of the completed building. The consideration for this building, enlarged from the original design, is $1,420,000, exclusive of drainage, water-pipe, plumbing, painting and decoration.

Machinery Building.—This building, 1402 feet in length and 360 in width, with an annex on the south side of 208 × 210 feet, providing 14 acres of floor space, was contracted for by Philip Quigley, of Wilmington, Del., January 27 of the present year. The contractor has worked out his material and shown commendable energy in pushing forward the work of erection, which he has already commenced. The contract requires its delivery by October 1, 1875, but he fully expects to entirely complete more than one-half of it by the fourth day of July next, and the remaining portion is of easy accomplishment within the period agreed upon. The consideration of this contract is $542,300, including drainage, water-pipe, plumbing, etc., and exclusive of inside painting.

Horticultural Building.—This building, beautiful in design and well adapted for its purpose, and as a permanent ornamental structure, on Lansdowne Plateau, has been undertaken by John Rice, with an agree-

ment to complete and deliver it by the 15th day of September, 1875. The contract was made January 1, 1875, for the sum of $253,937, exclusive of heating apparatus. No apprehension is felt of delay in the delivery of this structure, which is now well in hand and in course of erection. The length of the building, with approaches, is 383 feet, width 193 feet, and height, to the top of the lantern, 72 feet.

Agricultural Building.—The remaining building of the group of five principal halls is the Agricultural, 820 feet long and 540 feet in width, with a floor space of ten acres, to be composed of wood and glass, and to consist of a long nave and three cross-transepts, constructed of Howe truss arches of a gothic form. Its construction is easy and simple, but will combine adaptability with a pleasing effect. The working drawings of this building will be ready for contract within a fortnight of this time, and it will be placed under contract so as to secure its completion by the month of September next. The construction of one of the two buildings located at Elm and Belmont avenues, which will contain the rooms for executive officers, as well as for the accommodation of the post-office, custom-house, telegraph, fire alarm, and police headquarters, etc., has been commenced. A portion of it will be ready for occupancy in one week from this time, and the entire building, containing twenty-five office rooms, completed next month. The contractor is Aaron Doan, and contract price $18,801.

SYSTEM OF AWARDS.

First. Awards shall be based upon written reports attested by the signatures of their authors.

Second. Two hundred judges shall be appointed to make such reports, one-half of whom shall be foreigners and one-half citizens of the United States. They will be selected for their known qualifications and character, and will be experts in the departments to which they will be respectively assigned. The foreign members of this body will be appointed by the commission of each country, and in conformity with the distribution and allotment to each, which will be hereafter announced. The judges from the United States will be appointed by the Centennial Commission.

Third. The sum of one thousand dollars will be paid to each commissioned judge for personal expenses.

Fourth. Reports and awards shall be based upon inherent and comparative merit. The elements of merit shall be held to include considerations relating to originality, invention, discovery, utility, quality, skill, workmanship, fitness for the purposes intended, adaptation to public wants, economy and cost.

Fifth. Each report will be delivered to the Centennial Commission as soon as completed, for final award and publication.

SIXTH. Awards will be finally decreed by the United States Centennial Commission, in compliance with the act of Congress, and will consist of a diploma with a uniform bronze medal and a special report of the judges on the subject of the award.

SEVENTH. Each exhibitor will have the right to reproduce and publish the report awarded to him, but the United States Centennial Commission reserves the right to publish and dispose of all reports in the manner it thinks best for public information, and also to embody and distribute the reports as records of the exhibition.

LEGAL OPINIONS WITH REFERENCE TO THE SEIZURE OF GOODS OF EXHIBITORS FOR DEBT.

Opinion of the Counsellor of the Commission.

PHILADELPHIA, October 10, 1874.

HON. ALFRED T. GOSHORN, *Director-General.*

SIR: In answer to your communication enclosing and asking a legal opinion upon the following extract of a letter from His Excellency, the Austrian minister, viz.:—

"Whether, in the event of the failure of the exhibition pecuniarily—an event which it is hoped and expected will not occur—the foreign goods sent to the exhibition will be held free from seizure by the creditors of the Centennial Exhibition Commission and Committee, so that the foreign exhibitors may not lose their property or have difficulty in removing the same."—

I would state that the Act of Congress, approved June 1, 1872, provides that "all contracts made in any State for the purpose of the Centennial International Exhibition shall be subject to the laws thereof." The offices of the Commission and Board of Finance are in the State of Pennsylvania; there all the applications for space and privileges to exhibit are and must be made, no charge or claim being incurred therefor. The goods will be delivered to the exhibition in that State; neither the Commission nor Board of Finance have any ownership or property in them: they remain the property of the owner, and are deposited under the regulations of the Commission, to which the owners agree.

The law of Pennsylvania is well settled that goods thus deposited and placed on exhibition are free from seizure, and are not liable for the debts of the person or corporation thus receiving them.

The buildings are erected upon grounds already belonging to the public. They are subject to no rent or taxation, and are, therefore, exempt from that class of superior liens. The buildings, too, will be a United States bonded warehouse, in which all foreign goods for exhibition only will be entered and allowed to be returned free of duty.

I cannot imagine the possibility of such a claim being made, and am clearly of the opinion that if made it would be utterly invalid.

Yours, respectfully,

[SIGNED] JOHN L. SHOEMAKER,
Counsellor and Solicitor for the Centennial Commission.

We concur in the foregoing opinion.

[SIGNED] BENJAMIN HARRIS BREWSTER.
HENRY M. PHILLIPS.

October 13, 1874.

Opinion of the Attorney-General of the United States.

DEPARTMENT OF JUSTICE,
WASHINGTON, November 27, 1874.

HON. C. DELANO, *Secretary of the Interior.*

SIR: I have the honor to acknowledge the receipt of your letter of Nov. 4, 1874, and the papers transmitted therewith—to wit, copies of the following documents: a letter addressed to the Secretary of State, of date of 16th September, 1874, by Baron Schwartz-Senborn, minister of Austria, Hungary; a letter addressed to the Secretary of the Interior (dated Nov. 2, 1874) by Hon. Alfred T. Goshorn, Director-General of the International Exhibition, 1876; and a communication from Hon. John L. Shoemaker, Counsellor and Solicitor for the Centennial Commission, addressed to the Director-General of the exhibition. These papers all relate to the subject of your letter, and to the question upon which you request of me an expression of opinion; that question is whether the goods of foreign exhibitors sent to the International Exhibition, to be inaugurated at Philadelphia May 10, 1876, "will be free from seizure by the creditors of the United States Centennial Commission and Centennial Board of Finance," so that they (the foreign exhibitors) may not lose their property or have difficulty in "removing the same." The laws which have been passed concerning the "International Exhibition" are: The Acts of Congress approved March 3, 1871 (16 Stats. 470), and June 2, 1872 (17 Stats. 202); also the Acts of the Legislature of the State of Pennsylvania, passed June 2, 1871 (Laws of Pennsylvania for 1871, p. 1311), and March 27, 1873 (Laws of Pennsylvania for 1873, p. 56). Upon a careful reading of these statutes, I find in them no provision giving to the Centennial Commission or to any corporation or association of persons connected with the management of the exhibition any property interest in the goods of the exhibitors. These persons and bodies corporate will have no ownership in the goods. They will be, at most, depositories or bailees, having the temporary custody of the goods for the purpose of the exhibitors. The relations of all parties to the goods upon their admission to the exhibition will be governed by the laws of the Commonwealth of Pennsylvania.

In that State, as everywhere, it is true generally that the property of one cannot be taken for the debt or liability of another. There must be in the debtor ownership or an estate in the thing to enable the creditor to execute his process upon it.

The law of Pennsylvania is very carefnl to protect the rights of persons to their property which is in the hands of others, and holds only that which the debtor *owns* answerable for his debts. The reports of her highest tribunal abound with cases which, under a great variety of circumstances, show the prevalence of this general rule. That court has decided that a sheriff is liable in damages, as a trespasser at the suit of the real owner, for levying an attachment upon goods in the possession of another and making a return upon the writ that they were "attached," although there was no "manual handling" of the goods by the sheriff, nor removal of them. Other cases, showing the strictness of the rnle, are: Spangler *vs.* Adams, of Martin 16 Serg. & R. 68; Com. *vs.* Watmough, 6 Whar. 116; Bank *vs.* Jones, 42 Penn. 536; same case, 44 Penn. 253. Under the law of Pennsylvania, as shown by these cases, it is very clear that the goods of the exhibitors will be free from all liability to seizures upon demands against the Commission, for which no superior lien can be claimed. The classes of obligations for the satisfaction of which liens attach to real estate, and sometimes to the personal property found on it, are taxes, rent and the claims of mechanics, material men and laborers upon bnildings or structures to the erection of which they have contributed skill, materials or labor. By the law of Pennsylvania, the personal property of the tenant or occupier of real estate upon which taxes are assessed is liable to be distrained for those taxes, but the goods of others in the possession of the tenant, and found upon the premises, are exempt. 2 Brightly's Pnrdon's Digest of the Laws of Pennsylvania, 1370, Sec. 90 of the Tax laws; see Moore *vs.* Marsh *et al.*, 60 Penn. 46. As to rent, it is well settled by repeated decisions of the Supreme Court of that State that the goods of strangers in the possession of the tenant are privileged from seizure for rent due upon the premises where the course of the tenant's business must of necessity give him such possessions. For the benefit of trade, and for the public convenience and advantage, the goods of third persons, put in the way of business upon rented premises, are protected from distress for rent. It wonld not be less prejudicial to the public than unjust to the owner were his property liable to be seized for the dnties of those through whose hands, in the current of the world's business, it must pass. Brown *vs.* Sims, 17 Serg. & R. 138; Riddle *vs.* Welden, 5 Watts, 9; Cadwalader *vs.* Tindall, 20 Penn. 20; Briggs *vs.* Large, 30 Penn. 287. In Brown *vs.* Sims it was said by Chief-Justice Gibson that "the right" to distrain the property of a stranger "rests on no principle of reason or justice," and that the exceptions would, in the end, eat out the rule. The principle upon

which he rests these exceptions—viz., the public convenience and advantage; and I will add, for the good name and honor of the whole nation, but particularly of the city of Philadelphia and the commonwealth of Pennsylvania, that the property of all exhibitors, especially those from abroad, should be free from all liability for the debts of those who are to control and manage the exhibition, whether those debts be for taxes, rent or any obligation whatsoever. The claims of mechanics, material men and laborers who contribute skill, materials and labor in the erection of the buildings can be made liens on them, but those liens cannot be extended so as to attach the goods placed in the buildings. Sections 1, 2, 18 of the Mechanics' Lien Act, 2 Brightly's Purd. Dig., p. 1025, as regards liability for rent and taxes. I have considered the question as if the ground on which the buildings are to be erected for the Centennial Exhibition, and the buildings also, were subject to taxation, and the Commission having the control of the exhibition a tenant owing rent to the owner of the premises; this is, however, far from the fact. The ground is public property, owned by the city of Philadelphia, and is not, as I understand, subject to taxation. It freely is tendered by that municipality to the use of those who, by law, will manage and control the exhibition, and they are not considered to be in the situation of tenants owing rent to the landlord.

For the reasons above set forth, I am clear in the opinion that the goods of those who shall appear as exhibitors at the "International Exhibition" will, under the laws of Pennsylvania, be entirely free from liability to seizure for the debts, claims or demands whatsoever against the Centennial Commission or any other corporate body, person or association of persons having to do with said exhibition. I cannot conceive of any risk, from this source, of the loss of their goods by foreign exhibitors, nor of any difficulty they will meet with in removing their property.

Very respectfully,

Your obedient servant,

GEO. H. WILLIAMS, *Attorney-General.*

Opinion of the Attorney-General of the State of Pennsylvania.

COMMONWEALTH OF PENNSYLVANIA,
OFFICE OF ATTORNEY-GENERAL, HARRISBURG, March 3, 1875.

TO HON. ALFRED T. GOSHORN,
Director-General of the United States Centennial International Exhibition.

SIR: In reply to your communication, in which you state in substance that rumors have been circulated that in the event of financial embarrassment of the Centennial Exhibition the goods sent by exhibitors thereto would be liable to seizure by its creditors, and desiring my opinion in relation thereto. Upon what grounds this rumor is based I am unable to comprehend.

The buildings are erected upon public grounds, and I am informed are exempt from taxation and rent, and no charge is made for space occupied by exhibitors.

There is no law of this State, in my opinion, that would subject the goods of exhibitors to liability for the indebtedness, if any should exist, of the Centennial Exhibition. As this rumor will command little if any consideration at home, but may excite attention abroad, I deem it proper to say that the owner of such goods will enjoy the same protection therefor as by the Constitution and laws of this State is afforded and given to her own citizens in the protection of like property. The right of property, its possession, enjoyment and protection, is one of the indefeasible rights expressly guaranteed by the Constitution of this State to all men. No distinction is made, whether the owner be a citizen or foreigner; the right is common to all, and secured by the laws of the State to all. No man's property can be invaded or taken except by due process of law—by authority of law; and there is no law of Pennsylvania whose authority could be invoked, in my opinion, to authorize the taking of the goods of exhibitors at the Centennial Exhibition to satisfy the creditors, if any there should be, of such exhibitors.

With great respect,
Your obedient servant,
SAM'L E. DIMMICK, *Attorney-General.*

PARTICIPATION OF FOREIGN GOVERNMENTS.

The invitation addressed to foreign governments has been generally accepted, and a larger number of nations will participate than in any previous international exhibition. The nations which thus purpose being represented, and most of which have appointed commissions to organize their exhibits, are as follows:

Argentine Confederation,	Australia and Canada,	Norway,
Belgium,	Guatemala and Salvador,	Orange Free State,
Bolivia,	Hawaii,	Persia,
Brazil,	Hayti,	Peru,
Chili,	Honduras,	Portugal,
China,	Italy,	Russia,
Denmark,	Japan,	Siam,
Ecuador,	Liberia,	Spain,
Egypt,	Mexico,	Sweden,
France and Algeria,	Netherlands,	Tunis,
Germany,	Nicaragua,	Turkey,
Great Britain, with		U. S. of Colombia,
		Venezuela.

In addition to these governments, which have formally accepted the in-

vitation of the President and notified the State Department to this date, preparations are being made in Austria, Hungary, Switzerland, Greece and several other countries to take part in the exhibition.

A number of governments have already made liberal appropriations in aid of the representation they purpose making of their industries.

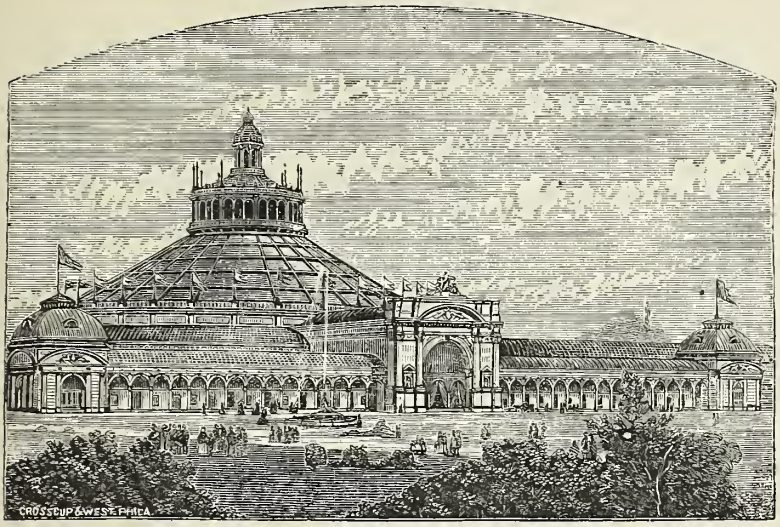
REVISION OF THE CALENDAR.

The changes which have been announced in the dates of opening and closing the exhibition were found to be necessary on two accounts. It is unsafe, in the climate of Philadelphia, to depend upon having settled spring weather much before the middle of May. In view of the importance to the success of the exhibition that exhibitors shall have good weather for the installation of their goods, and that the first impressions of visitors may be favorable, it seemed desirable to defer the opening day three weeks. Besides this, representations were made by several of the northerly countries which will participate in the exhibition, to the effect that the opening of navigation was liable to be delayed so nearly up to the announced date as to make it doubtful whether their products could be delivered in Philadelphia in season for installation before the exhibition opened. These considerations dictated the changes which have been made in the dates heretofore announced. The calendar as thus revised is as follows:

Reception of articles begins	Jan. 5, 1876.
" " " ends	April 19, "
Unoccupied space forfeited	April 26, "
Exhibition opens	May 10, "
" closes	Nov. 10, "
Goods to be removed by	Dec. 31, "

THE EXHIBITION BUILDINGS.

Building.	*Area Covered.*	*Contract Awarded.*	*Date of Completion.*	*Contract Price.*
Main Building,	21.47 acres.	July, 1874.	Jan., 1876.	$1,420,000.
Art Building,	1.50 "	July 4, 1874.	Jan. 1, 1876.	1,199,273.
Horticultural Building,	1.50 "	Jan. 1, 1875.	Sept. 5, 1875.	253,937.
Machinery Building,	14.00 "	Jan. 27, 1875.	Oct. 1, 1875.	542,300.
Agricultural Building,	10.15 "	June 16, 1875.	Jan. 1, 1876.	250,000.
	48.62 acres.			



Engraved expressly for Burley's United States Centennial Gazetteer and Guide.

VIENNA EXHIBITION, 1873.

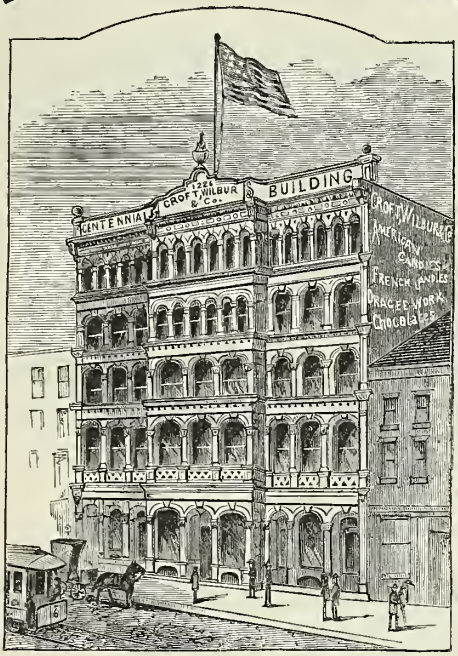
THE International Exhibition at Vienna was opened by the emperor of Austria on the 1st of May, and was closed on the 2d of November, 1873. Franz Joseph was the prime mover in this enterprise, and to his efforts was due such success as was achieved. The number of countries represented was larger than at any of the preceding exhibitions. Not only the countries of Europe and America, but the empires of the East, sent contributions. The Chinese were so condescending as to exhibit some of their productions in competition with the once-despised Western "barbarians." Japan, which nation once punished with death a foreign tour on the part of her natives, but which has since that time been "reconstructed," was represented by the articles of a number of her citizens, who came with the full approval of their government. India, Persia, Morocco, Tunis, Turkey and Egypt were also contributors. The Director-General was the Baron Von Schwartz-Senborn, who used every effort to have all arrangements completed in time, but the exhibitors were very slow in getting their portion of the labor accomplished. At the opening of the exposition the German and English departments were the only ones in which the preparations were not very much behindhand. This tardiness was especially noticeable in the department of the United States, the commissioners of which had been suspended by the President on account of grave charges which were brought against them. The number of visitors was 7,250,000, and on the closing day 139,037 persons entered the building. The number of American exhibitors was 922, a larger number than had taken part in any previous international exhibition. They carried off 9

"diplomas of honor," 70 "medals for progress," 177 "medals of merit," 2 "medals for Fine Arts," 5 "medals for good taste," 23 "medals for co-operators," and 145 "diplomas of merit or honorable mention," making in all 431 awards. One of the most interesting features of this exposition, and one well worthy of imitation in the future, was a series of international congresses, which were held in connection with the enterprise. They began with an International Patent Congress, which declared in favor of efficient patent laws for the protection of inventors, and resolved that only inventors should obtain patents, that patents should be issued for, or extended to, a term of fifteen years, and that a complete publication of patents should be obligatory. The Congress of Agriculture and Forestry, which was well attended, discussed the protection of useful birds, and passed a resolution requesting the Austrian government to secure the protection of birds which are useful to agriculture by means of international treaties, also to exert itself to bring about an international agreement among the states for improving the statistics of agriculture and forestry. The Congress of Cultivators of Flax resolved to establish a standing committee composed of members from all the states cultivating flax, which is to act as an international organ for the mutual communication of information which will lead to the improvement of that valuable product. The International Medical Congress declared in favor of compulsory vaccination, and of abolishing all land and river quarantines, together with a thorough revision of the ocean quarantine. In the Meteorological Congress the states of Europe, the United States and China were represented. Resolutions were passed aiming at the improvement of meteorological observations, and the establishment of a central meteorological institution was declared to be desirable. One of the most interesting and best attended of these congresses was the Private International Conference for voluntary aid in time of war. A number of resolutions were adopted relative to improved methods of transporting the wounded from the field of battle and on railroads, and one resolution recommended that in war every soldier be supplied with bandages, as in the case of his being wounded the necessary material would then be always at hand. The International Monetary Conference declared in favor of the old standard in preference to the pure silver or the double (gold and silver) standard, and recommended the introduction of an international five-dollar chief gold piece of 7½ grammes (115.8 grains), refined gold, and as an international monetary unit the metrical dollar of 1½ grammes (23.16 grains), divided into 100 cents. As the amount of pure gold in the dollar of the United States is 23.22 grains, and in the half-eagle is 116.1 grains, the difference in value between the proposed coins and those of the United States is little more than one-fourth of one per cent. Should this proposed system of international coinage ever be adopted, it might with reason be considered a substantial victory for "the almighty dollar."

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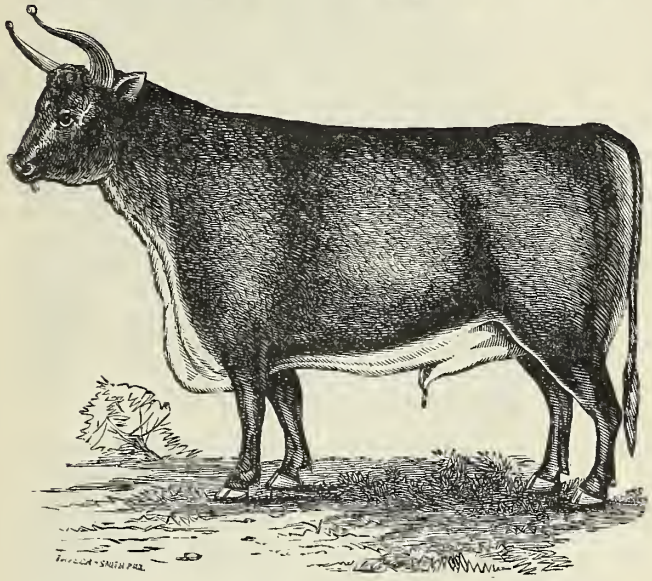
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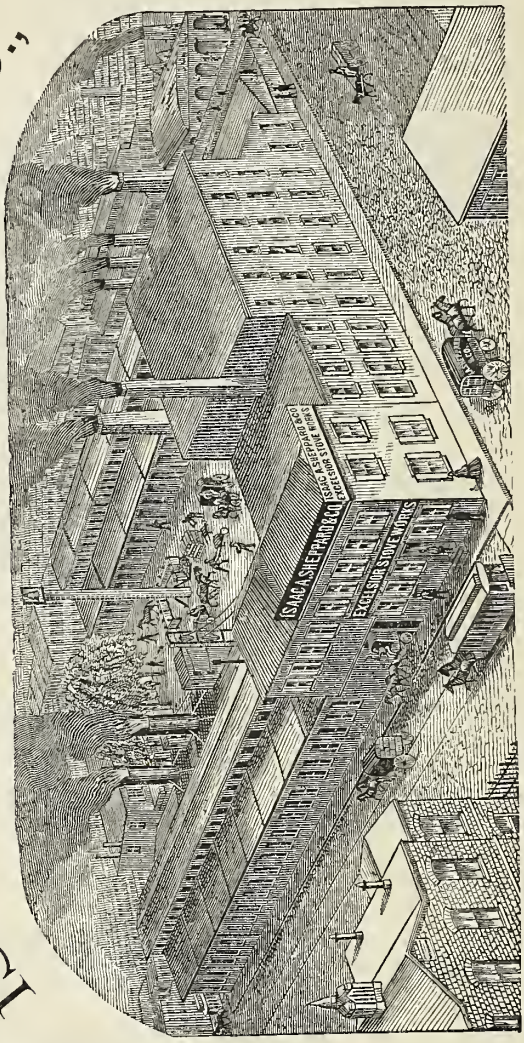
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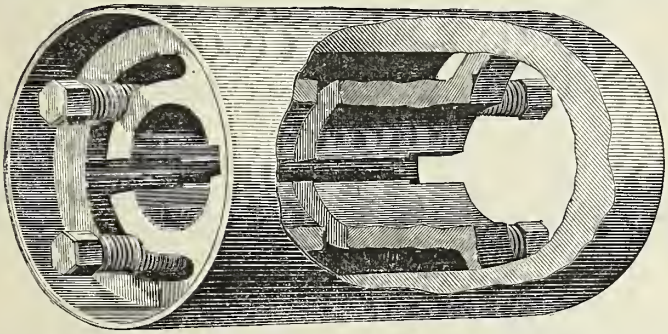
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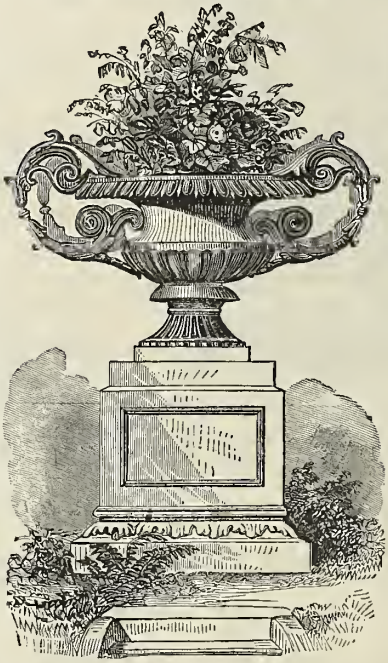
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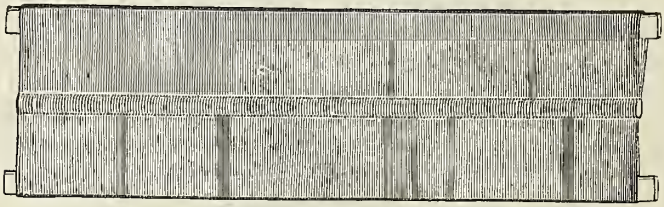
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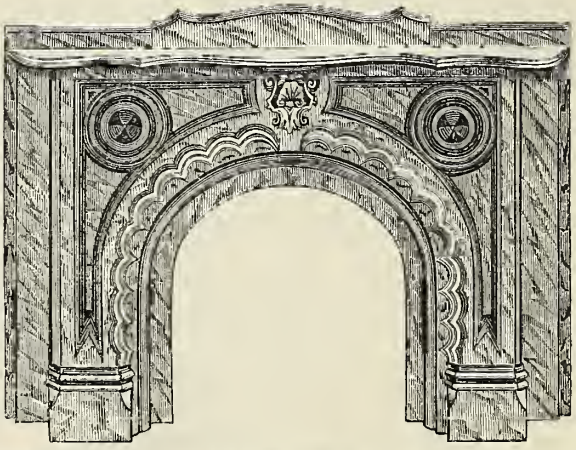
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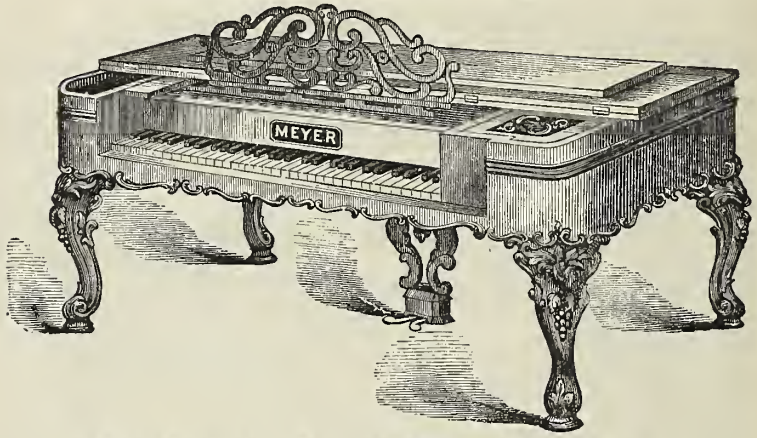
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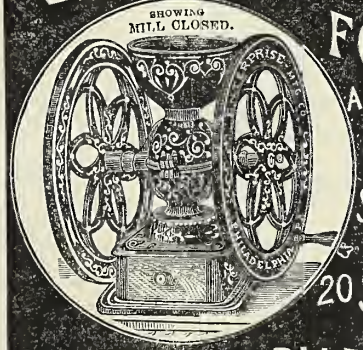
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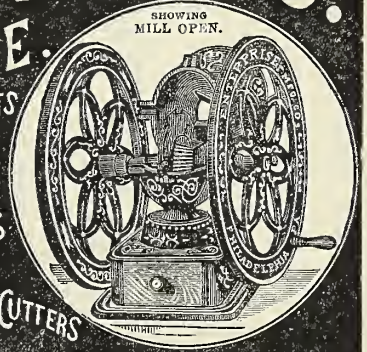
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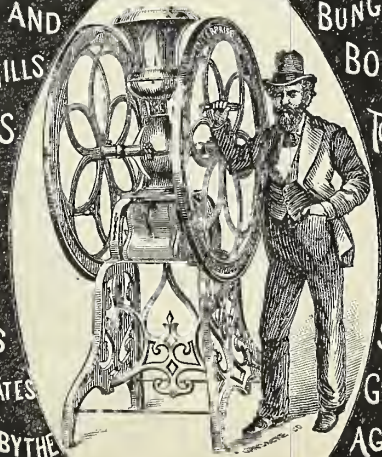
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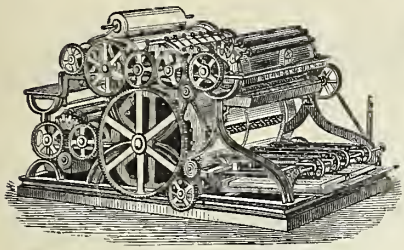
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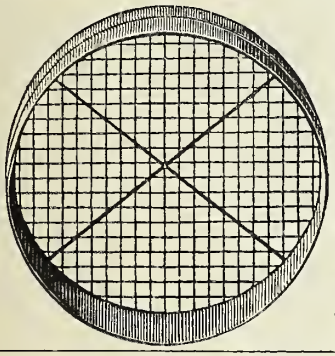
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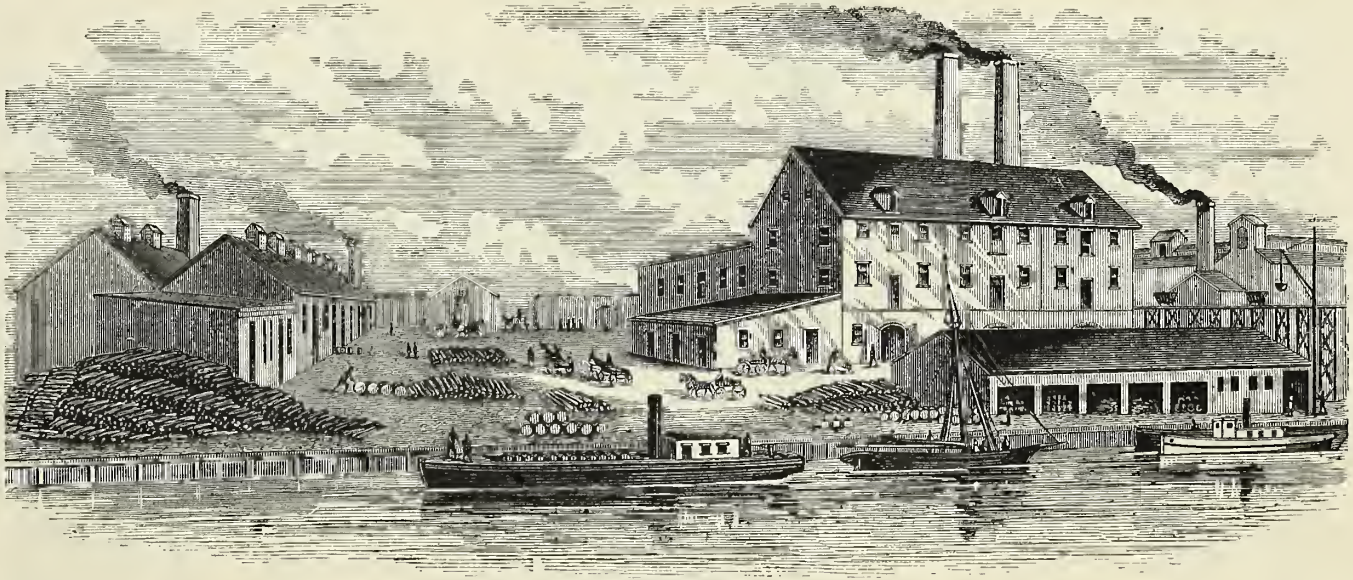
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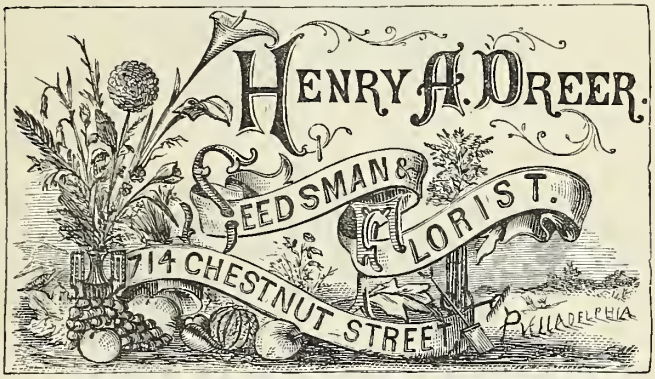
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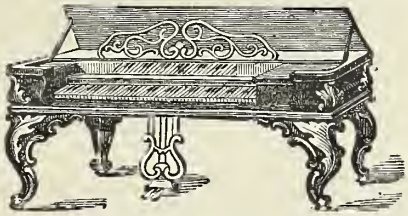
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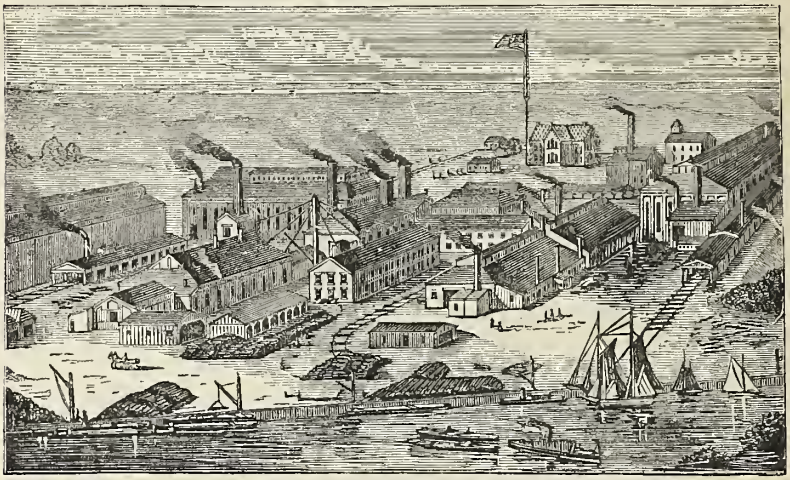
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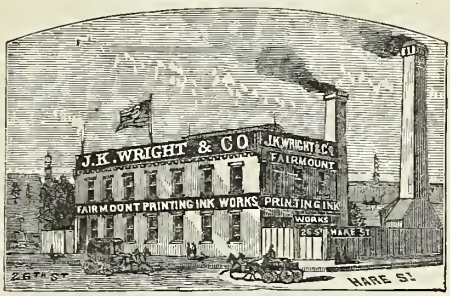
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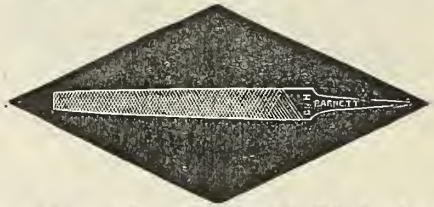
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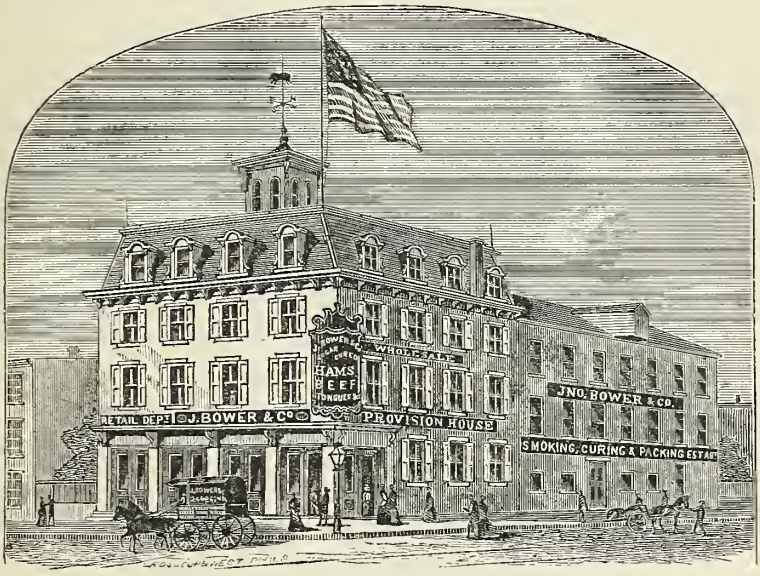
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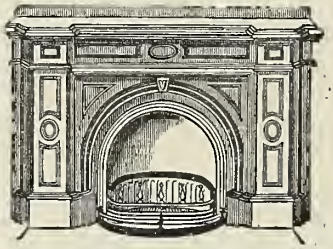
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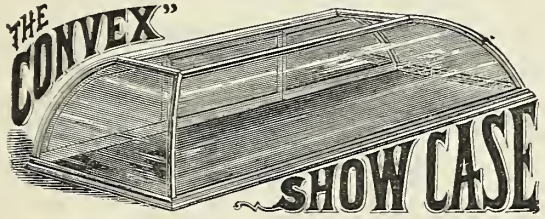
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"Fatty bodies at the present day can produce no more nor less than in the past, and no one can pretend that the addition of foreign matters, with which the soaps from the United States are loaded, is an improvement.

"To try to keep salt water in the paste, to introduce into it resin, talc, sulphate of baryta, argillaceous and ochreous earths, so as to increase the weight or to obtain a fallacious cheapness —giving the consumer a half pound of pure soap, or, in many cases, even less, made up with worthless and deleterious substances to appear a full pound—is a fraud, and not an industrial process; and it is to be regretted that, in any country, such operations should remain unpunished; and we must here express regret that, in one country at least, the peculiar standard which makes the reputation of all good soaps begins to be an exception. The most honest of manufacturers seem to have a tendency to abandon it by adding to their working mixtures all sorts of greases and oils—without doubt under the stimulus of competition and the pressure of necessity—while there seems to be no article too poor and worthless to be used by the less scrupulous of our American friends."

The one exception to the rule, the one pure soap among the countless adulterated ones, is the well-known "**DOBBINS' ELECTRIC SOAP,**" made by I. L. CRAGIN & CO., of PHILADELPHIA, a beautiful white soap, FREE FROM ANY ADULTERATION, and possessing cleansing properties that make it superior to any other soap made. The recipe for the manufacture of this very justly celebrated article was brought to this country by a poor Frenchman who had discovered the secret. Having no means to prosecute its manufacture, he sold for a song the recipe and right to use it to Mr. Dobbins, who soon after sold it to Messrs. I. L. Cragin & Co. for fifty thousand dollars, and by them alone is now made the world-renowned DOBBINS' ELECTRIC SOAP.

Its price is necessarily a little higher than that asked for adulterated soaps, but its cost of production is still higher in proportion to them; and that it is infinitely cheaper to the consumer the following figures show. There are well-known brands of yellow soaps made from the following formula by men who buy refuse pieces of Dobbins' Electric Soap from its manufacturers:

100 lbs. Dobbins' Electric Soap, at 12 cents,	$12 00
200 lbs. resin, at 2 cents,	4 00
100 lbs. clay, at 2 cents,	2 00
100 lbs. silicate of soda, at 2 cents,	2 00
500 lbs.,	$20 00

Or four cents per pound for the compound, each pound of which contains but three ounces of pure soap, the balance of thirteen ounces being valueless as far as its presence in soap is concerned.

The three ounces of soap possess all the detergent properties in the pound, and accomplish all the work done with the pound; or, in other words, three ounces of Dobbins' Electric Soap will do as much washing without this adulteration as with it, and, therefore, the three ounces will do all the work done by the pound of so-called family soap, which is in reality but three ounces of soap.

Were the price of the adulterated substance low enough, so that a pound of it would cost no more than three ounces of Dobbins' Electric Soap, it would make no difference to the consumer which she used.

Let us see if the prices of the two do agree. Dobbins' Electric Soap sells for thirteen cents per pound in Philadelphia, the other for eight cents per pound: but as the low-priced compound only contains and will only do the work of three ounces of Dobbins' Electric, we should have to buy five and one-third pounds to get as much soap in that form as from one pound of Dobbins' Electric.

This, at eight cents per pound, amounts to forty-two and two-thirds cents; that is, it will cost more than three times as much to use the eight-cent soap as it will to use Dobbins' Electric Soap at thirteen cents per pound.

Our suggestion is that while in Philadelphia each of our readers procure for test a sample of DOBBINS' ELECTRIC SOAP.

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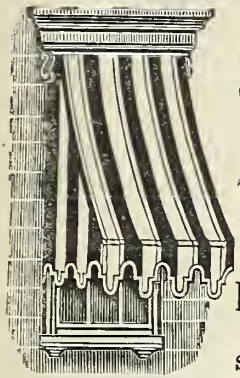
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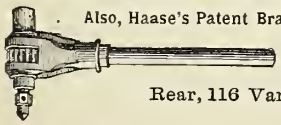
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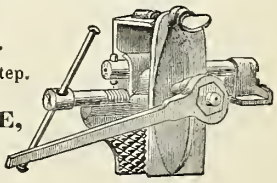
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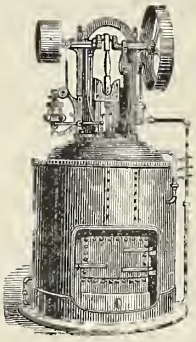
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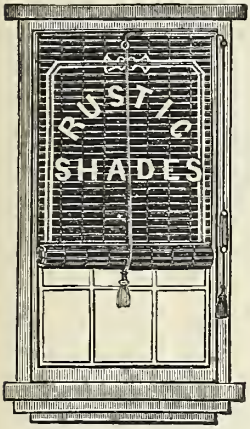
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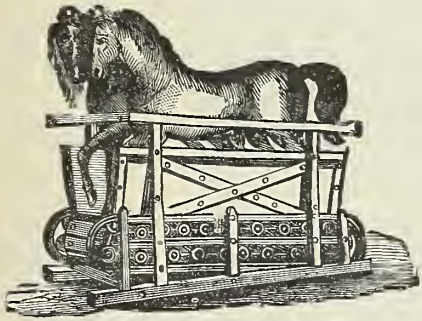
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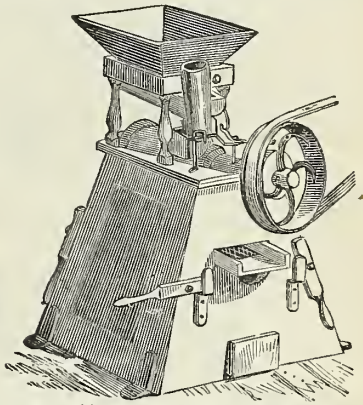
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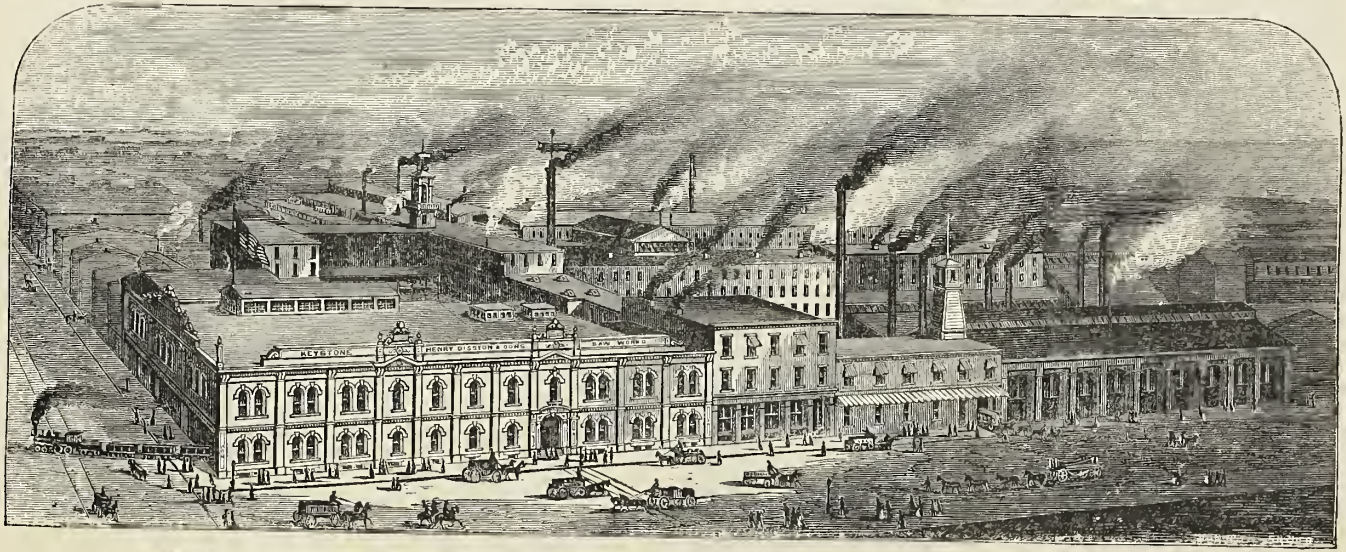
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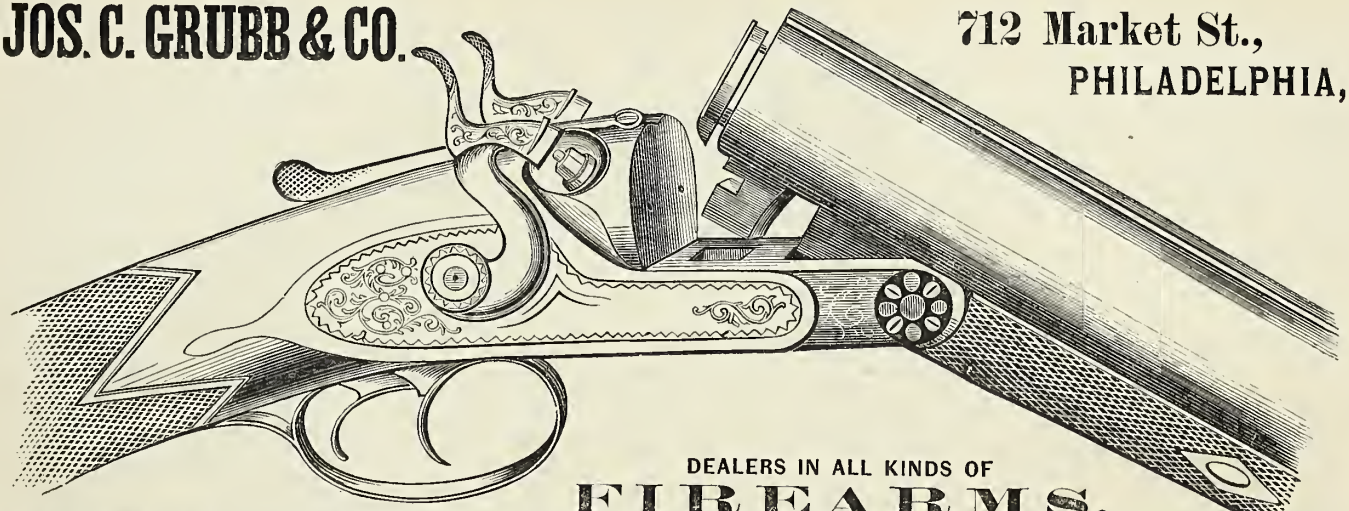
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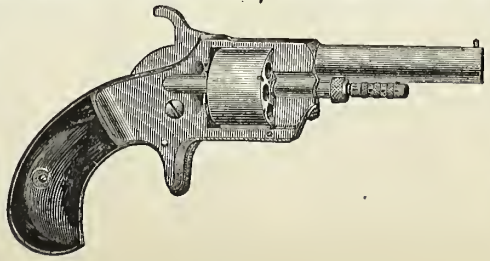
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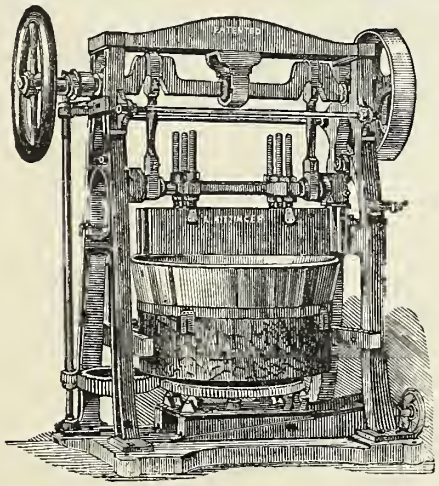
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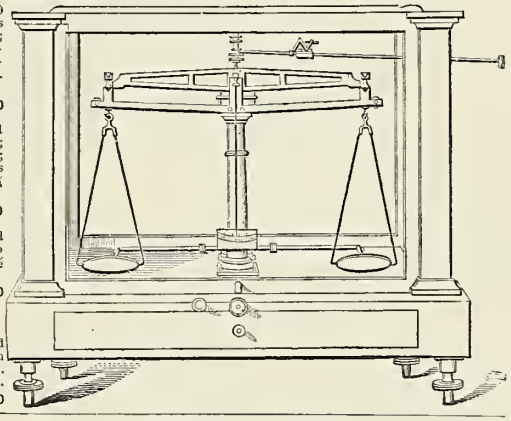
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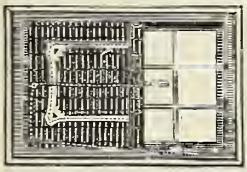
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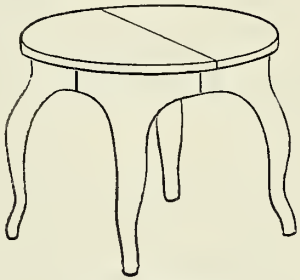


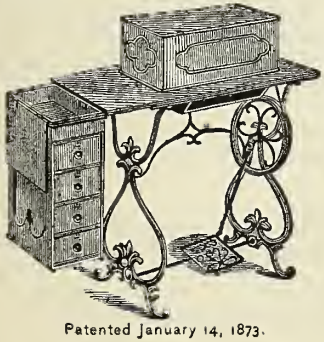
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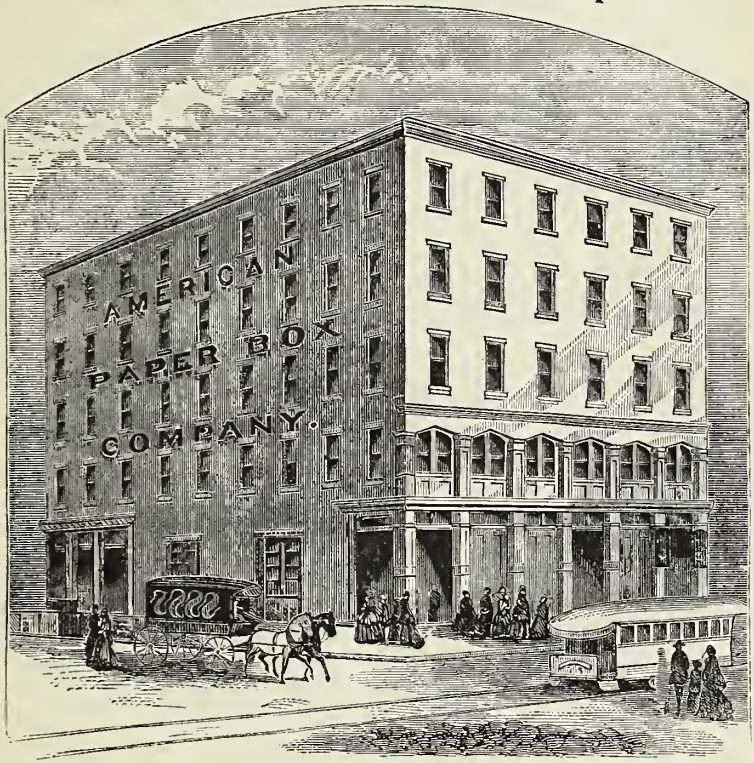
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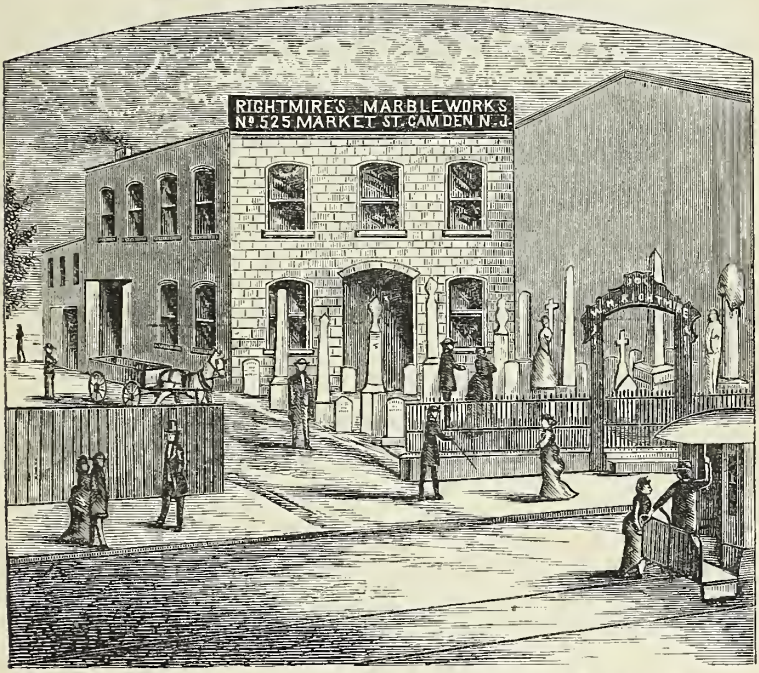
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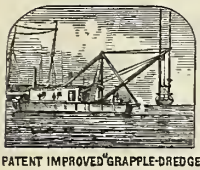
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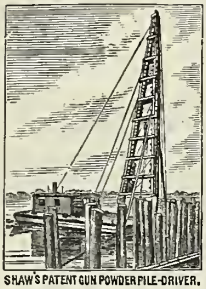
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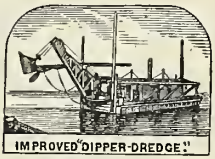
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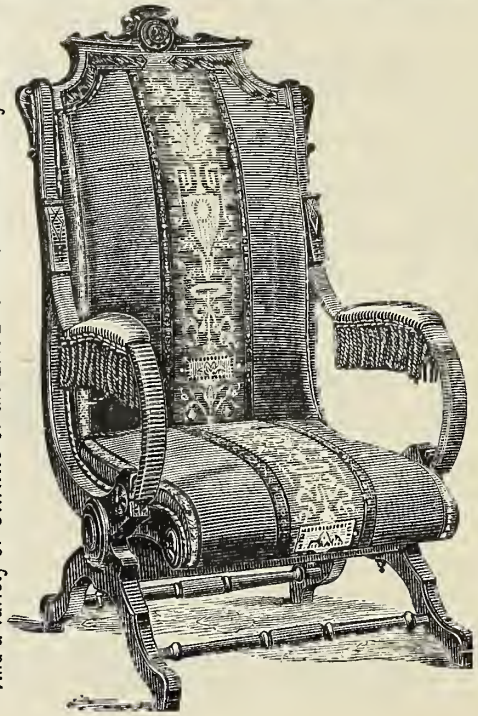
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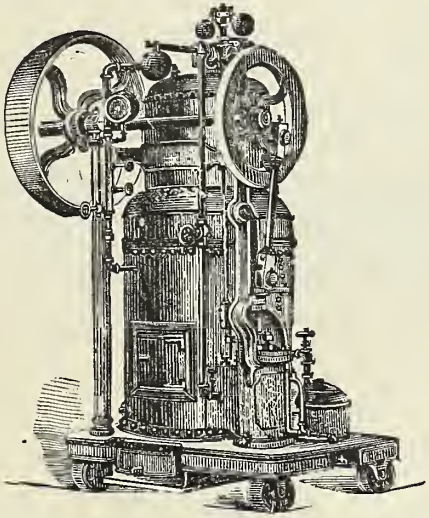
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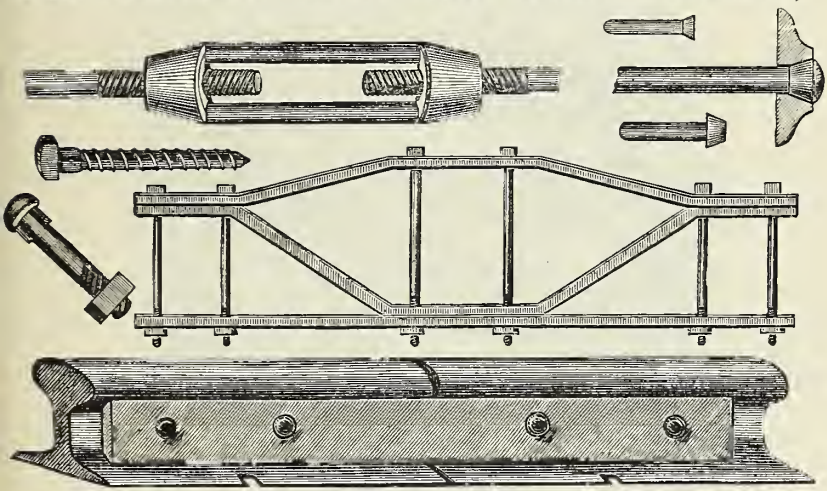
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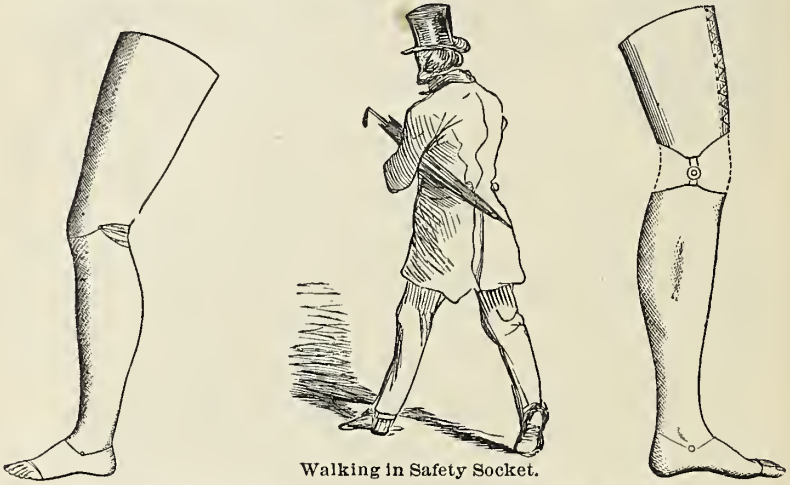
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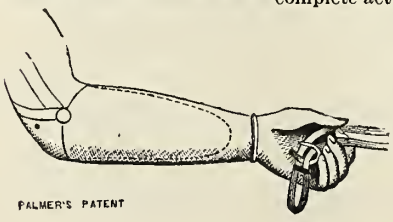
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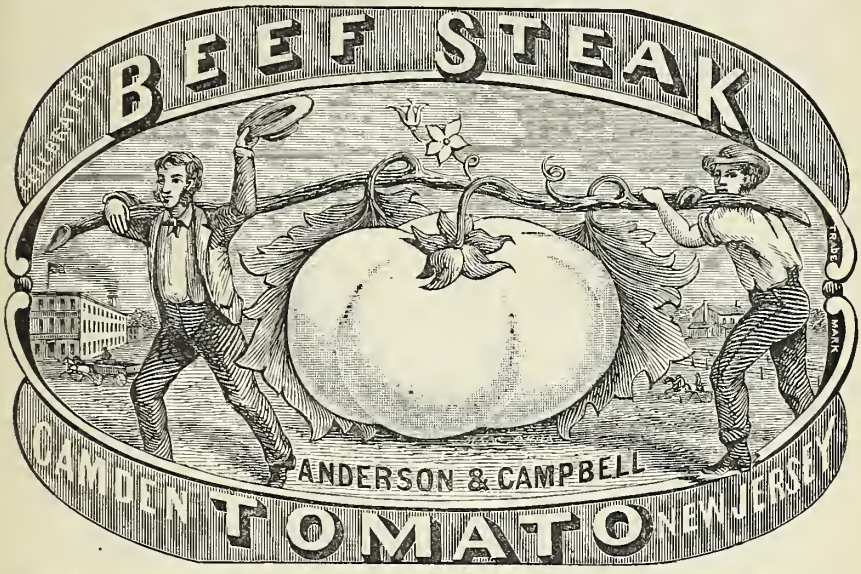
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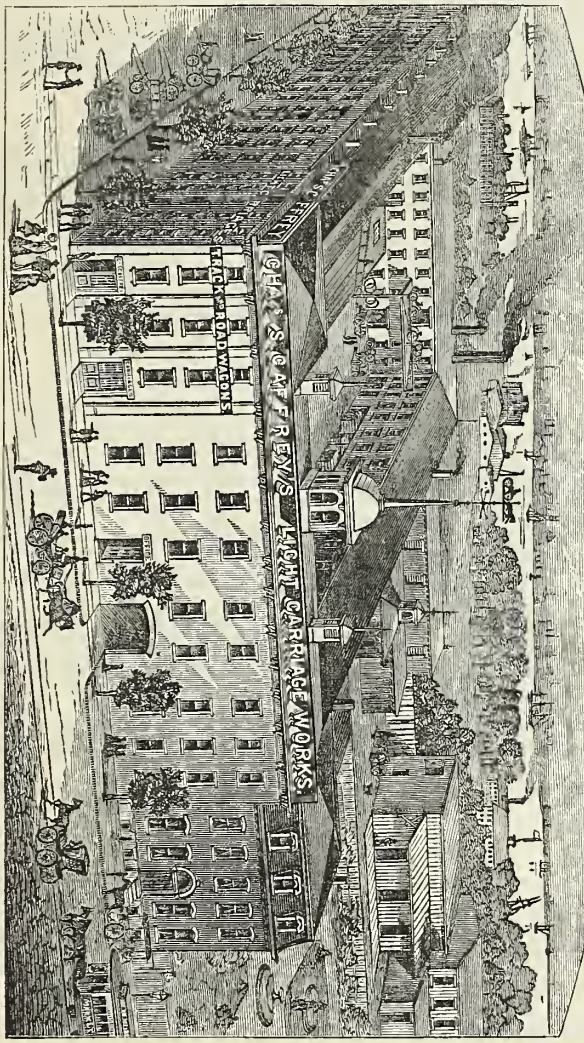
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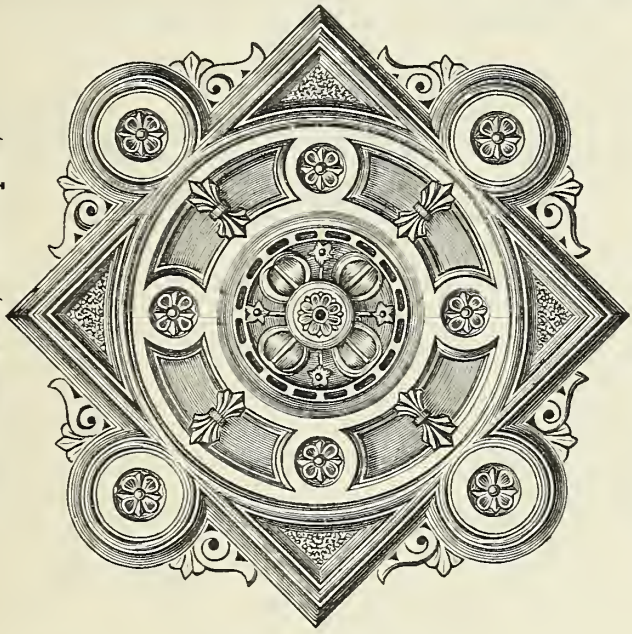
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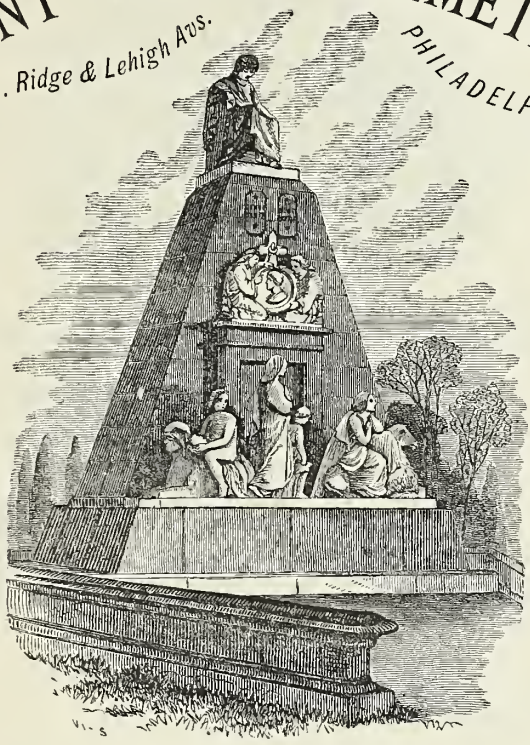
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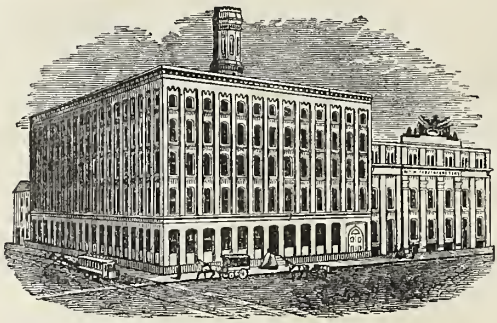
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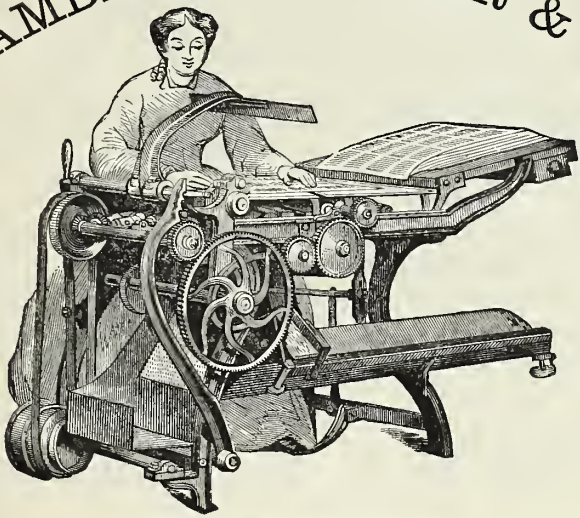
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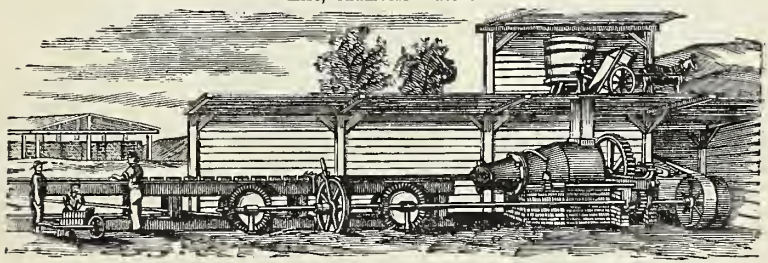
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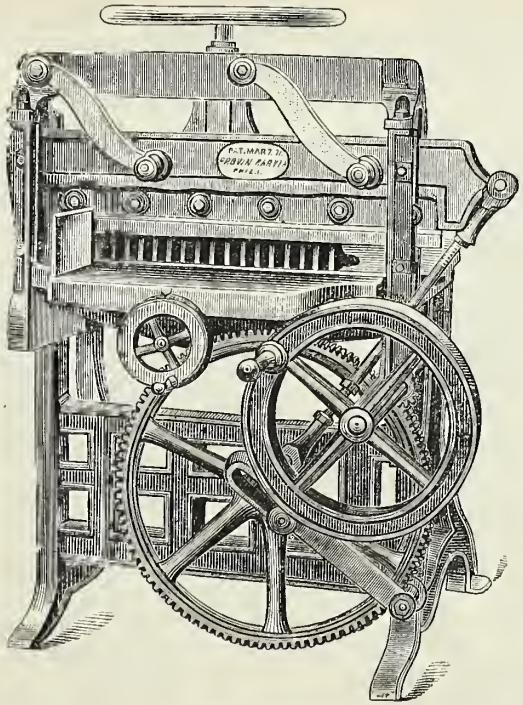
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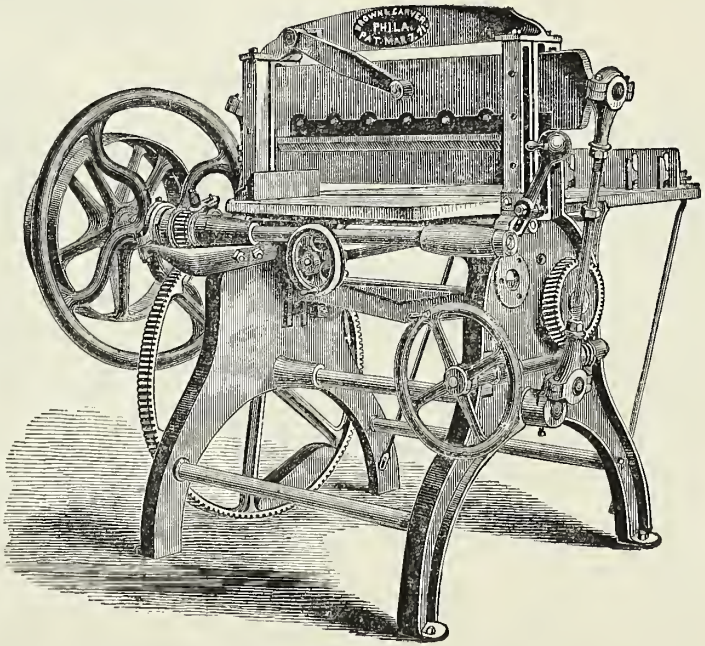
See Illustration on Page 805.

These Machines have the highest reputation throughout the United States for durability, accuracy and speed. They are the only Machines which have the improved traverse gange, which enables the operator to cut up to the last half inch of paper. At the Franklin Institute Exhibition, Oct., 1874, each Machine was awarded a **SILVER MEDAL** for their general superiority and special excellence. Since then we have added **MORE IMPROVEMENTS** to them. The Hand Machine is now arranged so that by a slight movement of a sliding pin the leverage or power is augmented to suit the heaviest work; and a reverse movement of the pin will cause an increased speed for light work. This peculiar feature will commend itself to the trade. We also make a superior **ROTARY CUTTER,** with Patent Feed Motion, for card manufacturers and others. Also a new and improved Fringing Machine, for fringing tissue paper. All of these Machines will be in operation at the Centennial Exhibition.

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[See Page 804 for Description.

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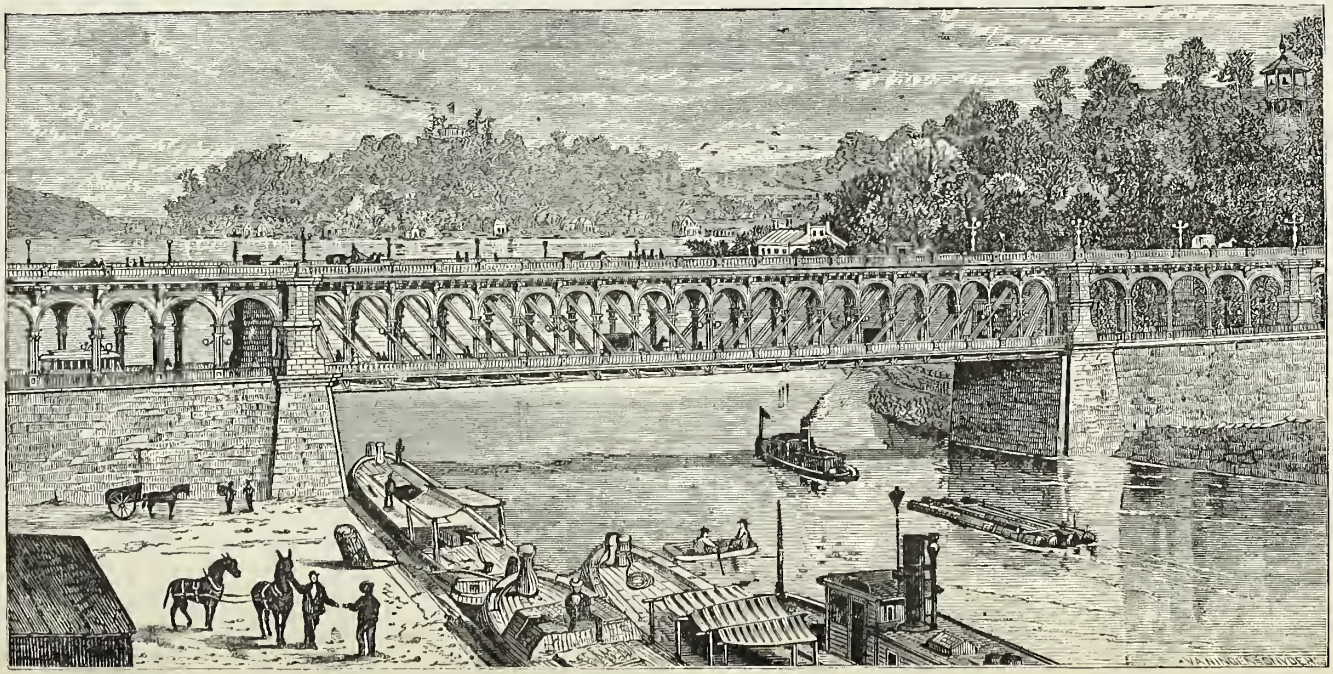
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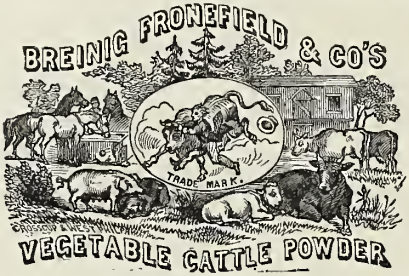
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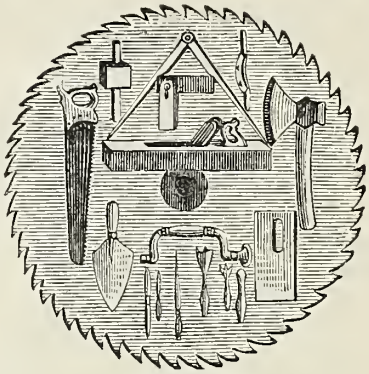
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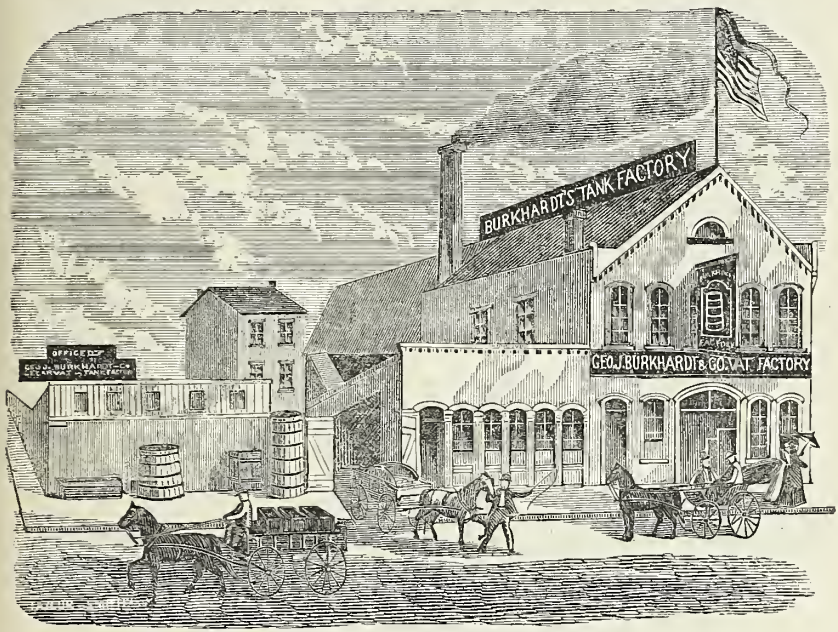
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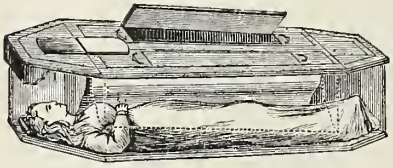
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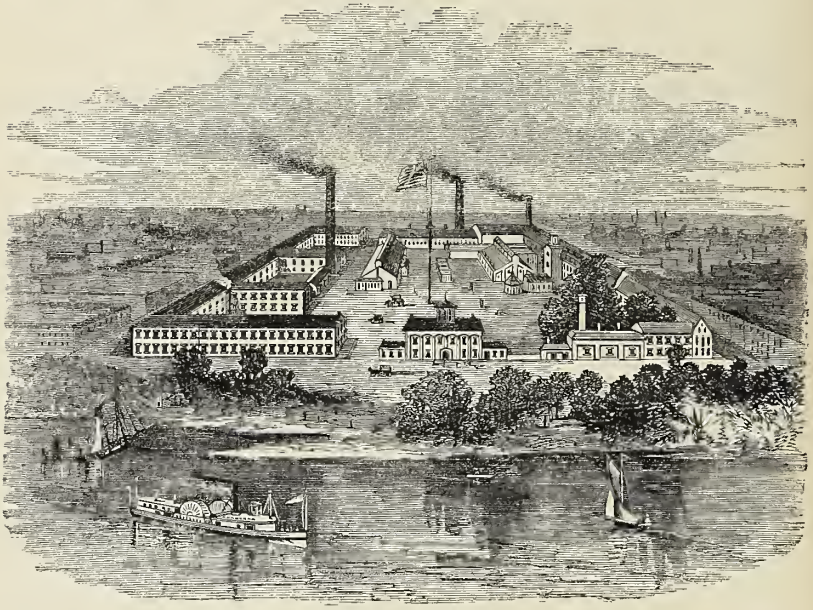
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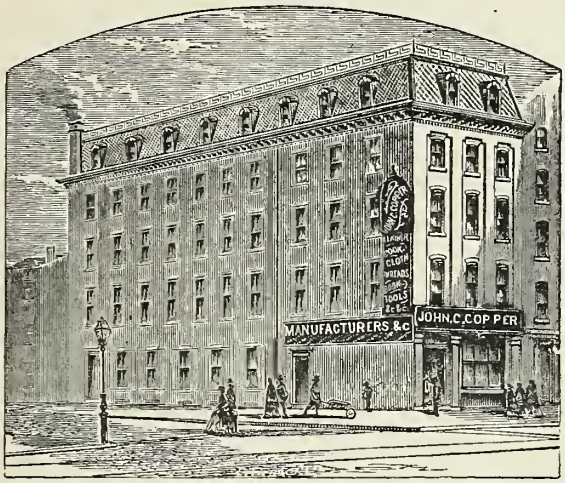
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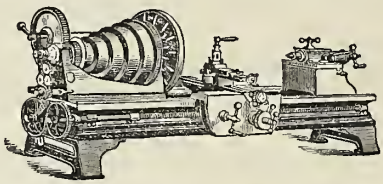
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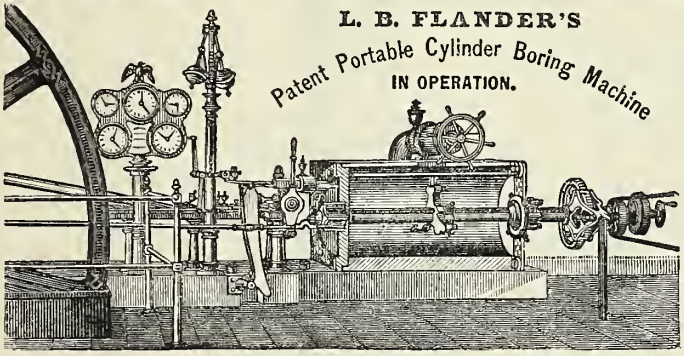
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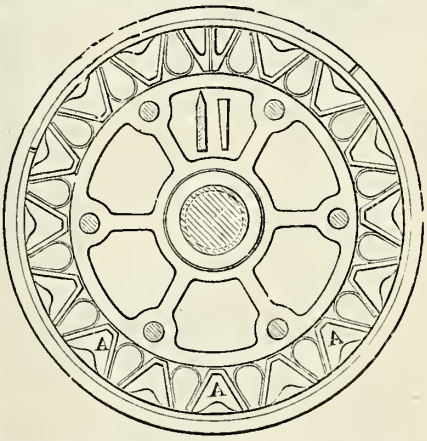
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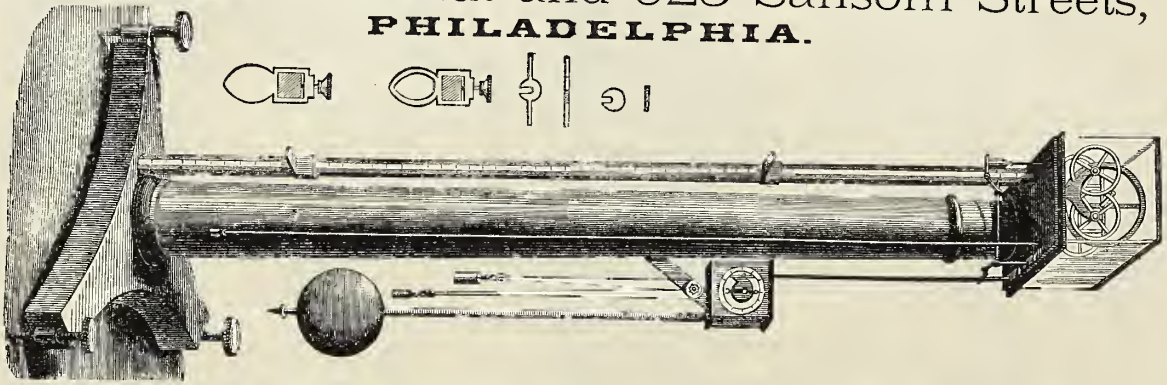
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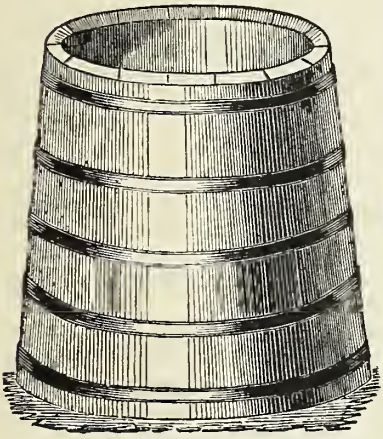
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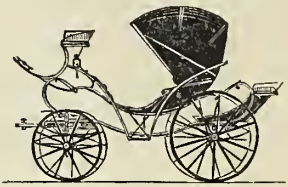
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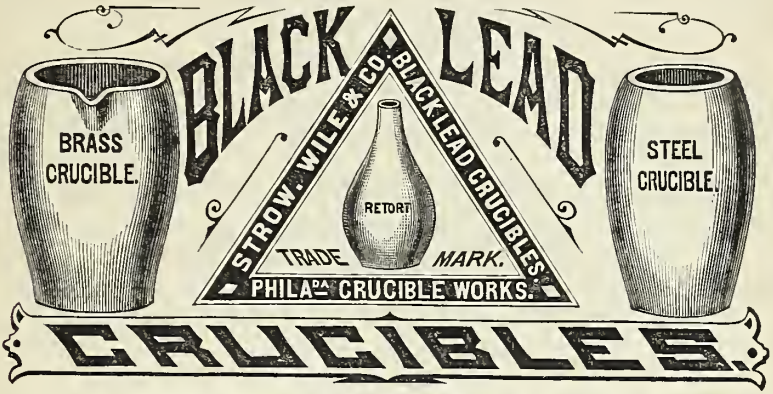
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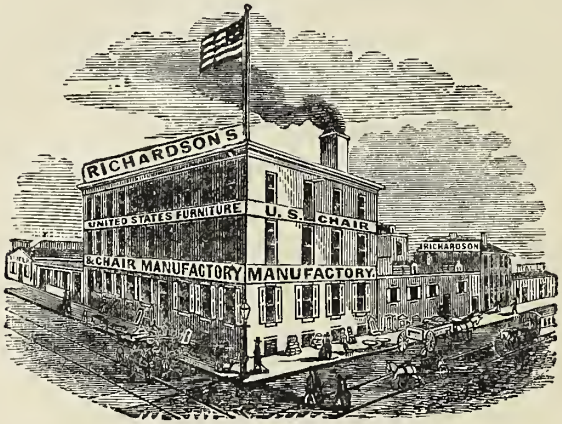
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AGRICULTURE IN PENNSYLVANIA.

IT would hardly be consistent with the purposes of the *Gazetteer and Guide* were we to omit reference to the advanced stage of agriculture in Pennsylvania, especially as it has been so frequently commented on by visitors from sister States and strangers from abroad. Here at Philadelphia, when the population embraced but forty-two thousand inhabitants, and the smoke of the Revolution had hardly passed away, was established a Society for the Promotion of Agriculture, as expressed by its title, which has in time become the fertile mother of a vast multitude of similar associations throughout our country. It is no small merit to have led the way in so laudable an effort, and it is only right and proper the fact should be made known wherever this work is read. The seed then sown has borne fruit now visible in the Agricultural Department of the Centennial Exhibition, and it is only reasonable to anticipate that vast fields yet untilled may profit by the patriotic efforts of the large-hearted citizens of Philadelphia of days long gone by.

A striking example of the value of intelligent culture is shown at Bloomsdale, an estate of five hundred acres, situated on the Delaware, a few miles above Philadelphia, adjoining the tract known as Penn's Manor. Upon this estate, and upon one thousand additional acres situate in Virginia, New Jersey and Wisconsin, selected for the advantages afforded by varied climates, and soils each adapted to specific crops, and each owned, occupied and cultivated by the firm, are produced "Landreth's Garden Seeds," a name which has become a household word, not only in this country, but even in India, where the British residents prefer these seeds even to those of their native land, as our climate ripens them better than the humid atmosphere of England. If the number of acres under cultivation affords a correct basis for an estimate (and where the best methods of culture are used this must be the case), the trade in these seeds must be larger than exists elsewhere, not only in the United States, but in the world, built up during three generations, not by extravagant self-adulation, but with the modest motto, "Landreth's seeds speak their own praise." The proprietors of this estate have availed themselves of the latest improvements both in

machinery and in the treatment of the soil, not as tardy followers, but as leaders, in the march of reform. Besides their numerous well-trained workmen, many of whom have been life-long *attachés* of the firm, there are at Bloomsdale three steam-engines for threshing, winnowing and cleaning seeds, grinding feed, etc., a caloric-engine for pumping, and a steaming apparatus for preparing food for the working stock. During the three years closing with 1875, persistent, energetic experiments in ploughing and tilling by steam-power have been conducted by the Messrs. Landreth at Bloomsdale, using the direct-traction engine of Williamson, with Thomson's India-rubber tire. At first, and for months, great hope of success was entertained; but unforeseen difficulties in the way of direct traction exhibited themselves. At present the purpose is to adopt the "rope system," as practiced successfully in England, using the Williamson engine as the moving power. If the success of railroads has won lasting honor for those who brought it about, certainly a meed of praise is justly due to those to whose encouragement the steam plough is indebted for its even partial success. The candid reader is doubtless by this time convinced that to the progressive men of the State is owing the marked advance of "agriculture."



Limited space prohibits many of the details of the operations at Bloomsdale, which we would gladly give our readers; the engraving annexed may, however, convey some idea of the extent of the structures required for the storage, drying and preservation of crops, and otherwise successful prosecution of the peculiar business there conducted, which is a credit to the proprietors, the successors of those who founded the business in 1784, and which may be classed as prominent among the important industrial enterprises of Pennsylvania.



SILVER MEDAL, 1853.



BRONZE MEDAL, 1874.

1776.



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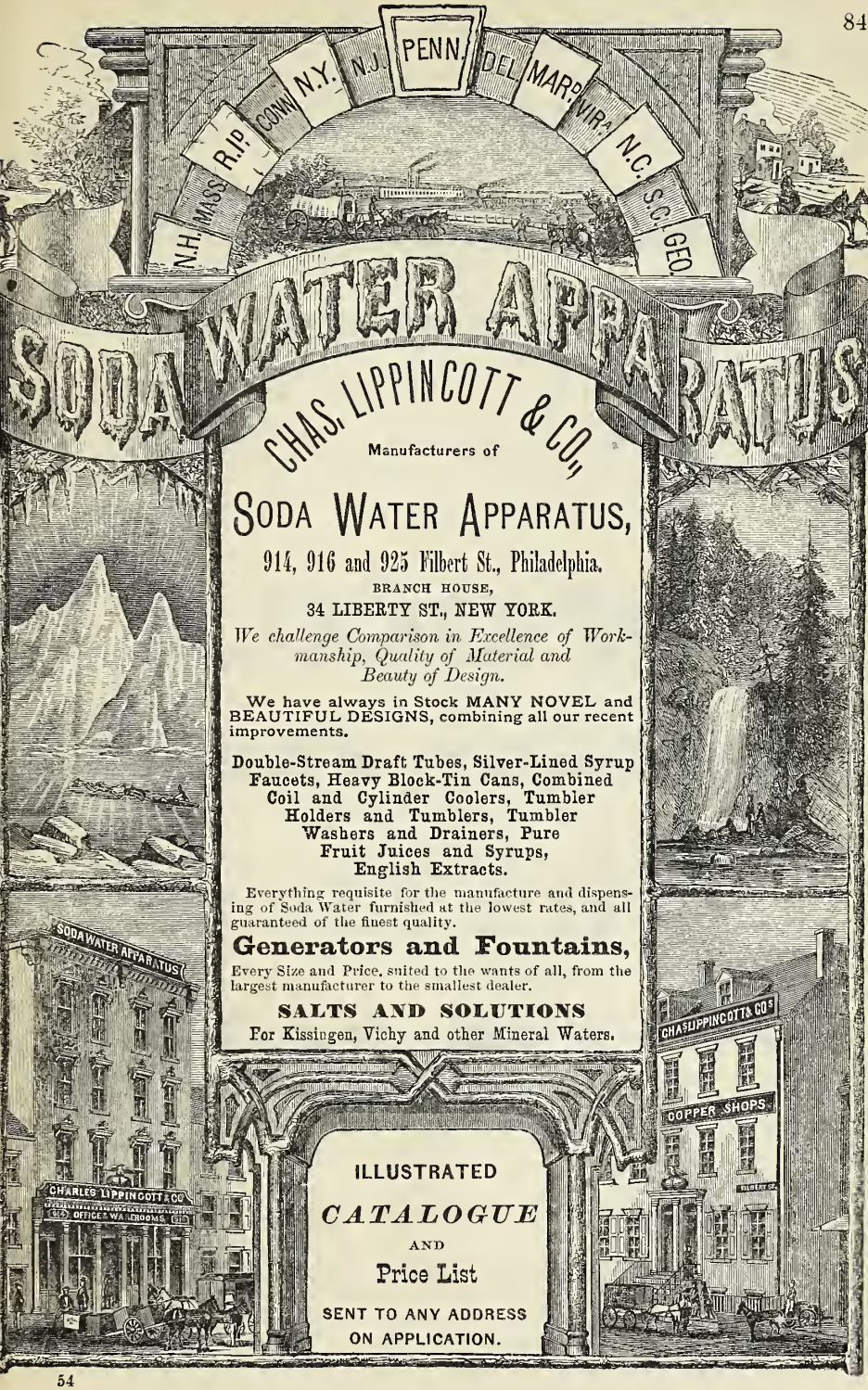
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[SEE PRECEDING PAGE.]

CENTENNIAL INTERNATIONAL EXHIBITION OF THE UNITED STATES, 1876.

SYSTEM OF CLASSIFICATION INTO DEPARTMENTS, GROUPS AND CLASSES.

DEPARTMENT I.—MINING AND METALLURGY.

Minerals, Ores, Building Stones and Mining Products.—*Class* 100. Minerals, ores, etc. Metallic and non-metallic minerals, exclusive of coal and oil. Collections of minerals systematically arranged; collections of ores and associated minerals; geological collections.—*Class* 101. Mineral combustibles. Coal, anthracite, semi-bituminous and bituminous, coal-waste and pressed coal; albertite, asphalte and asphaltic limestone; bitumen, mineral tar, crude petroleum.—*Class* 102. Building stones, marbles, slates, etc. Rough, hewn, sawed or polished, for buildings, bridges, walls or other constructions, or for interior decoration, or for furniture.—Marble—white, black or colored—used in building, decoration, statuary, monuments or furniture, in blocks or slabs not manufactured.—*Class* 103. Lime, cement and hydraulic cement, raw and burned, accompanied by specimens of the crude rock or material used, also artificial stone, concrete, beton. Specimens of lime mortar and mixtures, with illustrations of the processes of mixing, etc. Hydraulic and other cement. Beton mixtures and results, with illustrations of the processes. Artificial stone for building purposes, building blocks, cornices, etc. Artificial stone mixtures, for pavements, walls or ceilings. Plasters, mastics, etc.—*Class* 104. Clays, kaolin, silex and other materials for the manufacture of porcelain faience, and of glass, bricks, terra-cotta and tiles, and fire-brick. Refractory stones for lining furnaces, sandstone, steatite, etc., and refractory furnace materials.—*Class* 105. Graphite, crude and refined; for polishing purposes; for lubricating, electrotyping, photography, pencils, etc.—*Class* 106. Lithographic stones, hones, whetstones, grindstones, grinding and polishing materials, sand quartz, garnet, crude topaz, diamond, corundum, emery in the rock and pulverized, and in assorted sizes and grades.—*Class* 107. Mineral waters, artesian well water, natural brines, saline and alkaline efflorescences and solutions. Mineral

fertilizing substances, gypsum, phosphate of lime, marls, shells, coprolites, etc., not manufactured.

Metallurgical Products.—*Class* 110. Precious metals. *Class* 111. Iron and steel in the pig, ingot and bar, plates and sheets, with specimens of slags, fluxes, residues and products of working.—*Class* 112. Copper in ingots, bars and rolled, with specimens illustrating its various stages of production.—*Class* 113. Lead, zinc, antimony and other metals, the result of extractive processes.—*Class* 114. Alloys used as materials, brass, nickel, silver, solder, etc.

Mine Engineering—Models, Maps and Sections.—*Class* 120. Surface and underground surveying and plotting. Projection of underground work, location of shafts, tunnels, etc. Surveys for aqueducts and for drainage. Boring and drilling rocks, shafts and tunnels, etc.; surveys for aqueducts and for ascertaining the nature and extent of mineral deposits. Construction. Sinking and lining shafts by various methods, driving and timbering tunnels, and the general operations of opening, stoping and breaking down ore, timbering, lagging and masonry. Hoisting and delivering at the surface, rock, ore or miners. Pumping and draining by engines, buckets or by adits. Ventilation and lighting. Subaqueous mining, blasting, etc. Hydraulic mining, and the various processes and methods of sluicing and washing auriferous gravel and other superficial deposits. Quarrying.—*Class* 121. Models of mines, of veins, etc.

DEPARTMENT II.—MANUFACTURES.

Chemical.—*Class* 200. Chemicals, pharmaceutical preparations. Mineral acids and the methods of manufacture; sulphuric, nitric and hydrochloric acids. The common commercial alkalies, potash, soda and ammonia, with their carbonates. Salt and its production; salt from deposits —native salt; salt by solar evaporation from sea-water; salt by evaporation from water of saline springs or wells; rock-salt; ground and table salt. Bleaching powders and chloride of lime. Yeast powders, baking powders.—*Class* 201. Oils, soaps, candles, illuminating and other gases; oils from mineral, animal and vegetable sources; refined petroleum, benzine, naphtha and other products of the manufacture; oils from various seeds, refined, and of various degrees of purity; olive oil, cotton-seed oil, palm oil; animal oils of various kinds in their refined state; oils prepared for special purposes besides lighting and for food; lubricating oils. Soaps and detergent preparations. Candles, stearine, glycerine, paraffine, etc., spermaceti. Illuminating gas and its manufacture. Oxygen gas and its application for heating, lighting, metallurgy, and as a remedial agent. Chlorine and carbonic acid.—*Class* 202. Paints, pigments, dyes, colors, turpentine, varnishes, printing inks, writing inks, blacking.—*Class* 203. Flavoring extracts, essences, perfumery, pomades, cosmetics.—*Class* 204. Explosive

and fulminating compounds, in small quantities ouly, and under special regulations, shown in the building ouly by empty cases and cartridges; black powder of various grades and sizes; nitro-glycerine and the methods of using and exploding; giant powder, dynamite, dualin, tri-nitro-glycerine.—*Class* 205. Pyrotechnics for display, signaling, missiles.

Ceramics—Pottery, Porcelain, etc.—*Class* 206. Bricks, draiu-tiles, terra cotta aud architectural pottery.—*Class* 207. Fire-clay goods, crucibles, pots, furnaces; chemical stoneware.—*Class* 208. Tiles, plain, enamelled, encaustic; geometric tiles and mosaics; tiles for pavements and for roofing, etc.—*Class* 209. Porcelain for purposes of construction; hardware trimmiugs, etc.—*Class* 210. Stone china, for chemists, druggists, etc.; earthenware, stoneware, faience, etc.—*Class* 211. Majolica and Palissy ware.—*Class* 212. Biscuit-ware, parian, etc.—*Class* 213. Porcelain for table and toilet use, and for decoration.

Glass and Glassware.—*Class* 214. Glass used in construction and for mirrors. Wiudow-glass of various grades of quality and size; plate-glass, rough and ground or polished; toughened glass.—*Class* 215. Chemical and pharmaceutical glassware, vials, bottles.—*Class* 216. Decorative glassware.

Furniture and Objects of general Use in Construction and in Dwellings.—*Class* 217. Heavy furniture—chairs, tables, parlor and chamber suits, office and library furniture; vestibule furniture, church furniture and decoratiou.—*Class* 218. Table furniture—glass, china, silver, silver-plate, tea and coffee sets, urns, samovars, epergnes.—*Class* 219. Mirrors, stained and enamelled glass, cut and engraved window-glass and other decorative objects.—*Class* 220. Gilt cornices, brackets, picture-frames, etc.—*Class* 221. The nursery and its accessories; children's chairs, walking-chairs.—*Class* 222. Apparatus and fixtures for heating and cooking—stoves, ranges, heaters, etc.—*Class* 223. Apparatus for lighting—gas-fixtures, lamps, etc.—*Class* 224. Kitchen and pantry—utensils, tinware and apparatus used in cooking (exclusive of cutlery).—*Class* 225. Laundry appliances, washing-machines, mangles, clothes-wringers, clothes-bars, ironiug-tables.—*Class* 226. Bath-room and water-closet, shower-bath, earth-closet.—*Class* 227. Mauufactured parts of buildings—sash, blinds, mantels, metal work, etc.

Yarns and Woven Goods of Vegetable or Mineral Materials.—*Class* 228. Woven fabrics of mineral origin—Wire cloths, sieve-cloth, wire screens, bolting cloth. Asbestos fibre, spun and woven, with the clothing manufactured from it. Glass thread, floss and fabrics.—*Class* 229. Coarse fabrics of grass, rattan, cocoa-nut and bark. Mattings, Chinese, Japanese, palm-leaf, grass and rushes. Floor-cloths of rattan and cocoa-nut fibre, aloe fibre, etc.—*Class* 230. Cotton yarns and fabrics, bleached and unbleached. Cotton sheeting and shirting, plain and twilled.

Cotton canvas and duck; awnings, tents. *Class* 231. Dyed cotton fabrics, exclusive of prints and calicoes.—*Class* 232. Cotton prints and calicoes, including handkerchiefs, scarfs, etc.—*Class* 233. Linen and other vegetable fabrics, uncolored or dyed.—*Class* 234. Floor oil-cloths and other painted and enamelled tissues, and imitation of leather, with a woven base.

Woven and Felted Goods of Wool and Mixtures of Wool.—*Class* 235. Card-wool fabrics—yarns, broadcloth, doeskins, fancy cassimeres; felted goods.—*Class* 236. Flannels; plain flannels, domets, opera and fancy.—*Class* 237. Blankets, robes and shawls.—*Class* 238. Combined wool fabrics—worsteds, yarns, dress goods for women's wear, delaines, serges, poplins, merinoes.—*Class* 239. Carpets, rugs, etc.—Brussels, melton, tapestry, tapestry brussels, axminster, venetian, ingrain, felted carpetings, druggets, rugs, etc.—*Class* 240. Hair, alpaca, goat's hair, camel's hair and other fabrics, mixed or unmixed with wool.—*Class* 241. Printed and embossed woollen cloths, table-covers, patent velvets.

Silk and Silk Fabrics, and Mixtures in which Silk is the predominating Material.—*Class* 242. Cocoons and raw silk as reeled from the cocoon, thrown or twisted silks in the gum.—*Class* 243. Thrown or twisted silks, boiled off or dyed, in hanks, skeins or on spools.—*Class* 244. Spun silk yarns and fabrics, and the materials from which they are made.—*Class* 245. Plain woven silks, lutestrings, sarsnets, satins, serges, foulards, tissues for hat and millinery purposes, etc.—*Class* 246. Figured silk piece-goods, woven or printed; upholstery silks, etc.—*Class* 247. Crapes, velvets, gauzes, cravats, handkerchiefs, hosiery, knit goods, laces, scarfs, ties, veils, all descriptions of cut and made up silks.—*Class* 248. Ribbons, plain, fancy and velvet.—*Class* 249. Bindings, braids, cords, galloons, ladies' dress-trimmings, upholsterers', tailors' military and miscellaneous trimmings.

Clothing, Jewelry and Ornaments, Travelling Equipments.—*Class* 250. Ready-made clothing, knit goods and hosiery, military clothing, church vestments, costumes, waterproof clothing and clothing for special objects.—*Class* 251. Hats, caps, boots and shoes, gloves, mittens, etc., straw and palm-leaf hats, bonnets and millinery.—*Class* 252. Laces, embroideries and trimmings, for clothing, furniture and carriages.—*Class* 253. Jewelry and ornaments worn upon the person.—*Class* 254. Artificial flowers, coiffures, buttons, trimmings, pins, hooks and eyes, fans, umbrellas, sun-shades, walking-canes, pipes and small objects of dress or adornment, exclusive of jewelry; toys and fancy articles.—*Class* 255. Fancy leather work, pocket-books, toilet-cases, travelling equipments, valises and trunks.—*Class* 256. Furs.—*Class* 257. Historical collections of costumes, national costumes.

Paper, Blank Books and Stationery.—*Class* 258. Stationery for the desk, stationers' articles, pens, pencils, inkstands and other ap-

paratus of writing and drawing.—*Class* 259. Writing-paper and envelopes, blank-book paper, bond-paper, tracing-paper, tracing-linen, tissue-paper, etc., etc.—*Class* 260. Printing-paper for books, newspapers, etc. Wrapping-paper of all grades, cartridge and manilla paper, paper bags.—*Class* 261. Blank-books; sets of account-books, specimens of ruling and binding, including blanks, billheads, etc., book-binding.—*Class* 262. Cards, playing-cards, card-board, binders' board, pasteboard, paper or card-board boxes.—*Class* 263. Building-paper, pasteboard for walls, cane-fibre felt for car-wheels, ornaments, etc.—*Class* 264. Wall-papers, enamelled and colored papers, imitations of leather, wood, etc.

Military and Naval Armaments, Ordnance, Fire-arms and Hunting Apparatus.—*Class* 265. Military small-arms, muskets, pistols and magazine-guns, with their ammunition.—*Class* 266. Light artillery, compound guns, machine-guns, mitrailleuses, etc.—*Class* 267. Heavy ordnance and its accessories.—*Class* 268. Knives, swords, spears and dirks.—*Class* 269. Firearms used for sporting and hunting; also other implements for the same purpose. *Class* 270. Traps for game, birds, vermin, etc.

Medicine, Surgery, Prothesis.—*Class* 272. Medicines; officinal (in any authoritative pharmacopœia), articles of the materia medica, preparations, unofficinal.—*Class* 273. Dietetic preparations, as beef extract and other articles intended especially for the sick.—*Class* 274. Pharmaceutical apparatus.—*Class* 275. Instruments for physical diagnosis, clinical thermometers, stethoscopes, ophthalmoscopes, etc. (except clinical microscopes, etc., for which see Class 324).—*Class* 276. Surgical instruments and appliances, with dressings, apparatus for deformities, prothesis, obstetrical instruments.—*Class* 277. Dental instruments and appliances.—*Class* 278. Vehicles and appliances for the transportation of the sick and wounded, during peace and war, on shore or at sea.

Hardware, Edge Tools, Cutlery and Metallic Products.—*Class* 280. Hand tools and instruments used by carpenters, joiners, and for wood and stone in general; miscellaneous hand tools used in industries, such as jewellers', engravers'.—*Class* 281. Cutlery, knives, pen-knives, scissors, razors, razor-straps, skates and implements sold by cutlers.—*Class* 282. Emery and sand paper, polishing powders, polishing and burnishing stones.—*Class* 283. Metal hollow-ware, ornamental castings.—*Class* 284. Hardware used in construction, exclusive of tools and implements; spikes, nails, screws, tacks, bolts, locks, latches, hinges, pulleys plumbers' and gas fitters' hardware, furniture fittings, ships' hardware saddlers' hardware, and harness fittings and trimmings.

Fabrics of Vegetable, Animal or Mineral Materials—*Class* 285. India rubber goods and manufactures.—*Class* 286. Brushes.—*Class* 287. Ropes, cordage.—*Class* 288. Flags, insignia, emblems.—

Class 289. Wooden and basket ware, papier maché.—*Class* 290. Undertakers' furnishing goods, caskets, coffins, etc.—*Class* 291. Galvanized iron work.

Carriages, Vehicles and Accessories.—(For farm vehicles and railway carriages see Departments of Agriculture and Machinery.)—*Class* 292. Pleasure carriages.—*Class* 293. Travelling carriages, coaches, stages, omnibuses, hearses; bath-chairs, velocipedes, baby carriages.—*Class* 294. Vehicles for movement of goods and heavy objects, carts, wagons, trucks.—*Class* 295. Sleighs, sledges, sleds, etc.—*Class* 296. Carriage and horse furniture, harness and saddlery, whips, spurs, horse blankets, carriage robes, rugs, etc.

DEPARTMENT III.—EDUCATION AND SCIENCE.

Educational Systems, Methods and Libraries.—*Class* 300. Elementary instruction; infant schools and kindergartens, arrangements, furniture, appliances and modes of training. Public schools, graded schools, buildings and grounds, equipments, courses of study, methods of instruction, text books, apparatus, including maps, charts, globes, etc.; pupils' work, including drawing and penmanship; provisions for physical training.—*Class* 301. Higher education; academies and high schools; colleges and universities; buildings and grounds, libraries, museums of zoology, botany, mineralogy, art and archæology, apparatus for illustration and research, mathematical, physical, chemical and astronomical courses of study, text books, catalogues, libraries and gymnasiums.—*Class* 302. Professional schools, theology, law, medicine and surgery, dentistry, pharmacy, mining, engineering, agriculture and mechanical arts, art and design, military schools, naval schools, normal schools, commercial schools, music. Buildings, text books, libraries, apparatus, methods and other accessories for professional schools.—*Class* 303. Institutions for instruction of the blind, deaf and dumb, and the feeble-minded.—*Class* 304. Education reports and statistics. National bureau of education. State, city and town systems. College, university and professional systems.—*Class* 305. Libraries, history, reports, statistics and catalogues.—*Class* 306. School and text books, dictionaries, encyclopædias, gazetteers, directories, index volumes, bibliographies, catalogues, almanacs, special treatises, general and miscellaneous literature, newspapers, technical and special newspapers and journals, illustrated papers, periodical literature.

Institutions and Organizations.—*Class* 310. Institutions founded for the increase and diffusion of knowledge, such as the Smithsonian Institution, the Royal Institution, the Institute of France, British Association for the Advancement of Science, and the American Association, etc., their organization, history and results.—*Class* 311. Learned and scientific associations; geological and mineralogical societies, etc.; engi-

neering, technical and professional associations; Artistic, biological, zoological, medical schools, astronomical observatories.—*Class* 312. Museums, collections, art galleries, exhibitions of works of art and industry. Agricultural fairs, State and county exhibitions, national exhibitions, international exhibitions. Scientific museums and art museums. Ethnological and archæological collections.—*Class* 313. Music and the drama.

Scientific and Philosophical Instruments and Methods.—*Class* 320. Instruments of precision, and apparatus of physical research, experiment and illustration. Astronomical instruments and accessories used in observatories. Transits, mural circles, equatorials, collimators. Geodetic and surveying instruments, transits, theodolites, needle compasses; instruments for surveying underground in mines, tunnels and excavations. Nautical astronomical instruments; sextants, quadrants, repeating circles, dip-sectors. Levelling instruments and apparatus; carpenters' and builders' levels, hand levels, water levels, engineers' levels. Instruments for deep-sea sounding and hydrographic surveying. Meteorological instruments and apparatus. Thermometers, pyrometers, barometers, hygrometers and rain gauges, maps, bulletins, blanks for reports, methods of recording, reducing and reporting observations.—*Class* 321. Indicating and registering apparatus other than meteorological, mechanical calculation. Viameters, pedometers, perambulators. Gas meters. Water meters, current meters, ships' logs, electrical logs. Tide registers. Apparatus for printing consecutive numbers. Counting machines, calculating engines, arithmometers.—*Class* 322. Weights, measures, weighing and metrological apparatus. Measures of length; graduated scales on wood, metal, ivory, tape or ribbon, steel tapes, chains, rods, verniers, rods and graduated scales for measuring lumber, goods in packages, casks, etc., gaugers' tools and methods. Measures of capacity for solids and liquids. Weights; scales and graduated beams for weighing, assay balances, chemical balances. Ordinary scales for heavy weights; weighing locomotives and trains of cars; postal balances; hydrometers, alcoömeters, lactometers, etc.; gravimeters.—*Class* 323. Chronometric apparatus; chronometers, astronomical clocks, church and metropolitan clocks, ordinary commercial clocks, pendulum and spring clocks, marine clocks, watches, clepsydras, hour-glasses, sun-dials; chronographs, electrical clocks; metronomes.—*Class* 324. Optical and thermotic instruments and apparatus. Mirrors, plane and spherical. Lenses and prisms. Spectacles and eye-glasses, field- and opera-glasses, graphoscopes and stereoscopes. Cameras and photographic apparatus. Microscopes; telescopes. Apparatus for artificial illumination, including electric, oxyhydrogen and magnesium light. Stereopticons. Photometric apparatus. Spectroscopes and accessories for spectrum analysis. Polariscopes, etc. Thermotic apparatus.—*Class* 325. Electrical apparatus. Friction machines. Condensers and

miscellaneous apparatus to illustrate the discharge. Galvanic batteries and accessories to illustrate dynamical electricity. Electro-magnetic apparatus. Induction machines, Rumkorff coils, etc. Magnets and magneto-electrical apparatus.—*Class* 326. Telegraphic instruments and methods. Batteries and forms of apparatus used in generating the electrical currents for telegraphic purposes. Conductors and insulators, and methods of support, marine telegraph cables. Apparatus of transmission; keys, office accessories and apparatus. Receiving instruments, relay magnets, local circuits. Semaphoric and recording instruments. Codes, signs or signals. Printing telegraphs for special uses. Electrographs. Dial or cadran systems. Apparatus for automatic transmission.—*Class* 327. Musical instruments and acoustic apparatus. Percussion instruments, drums, tamborines, cymbals, triangles. Pianos. Stringed instruments other than pianos. Automatic musical instruments, music-boxes. Wind instruments of metal and of wood. Harmoniums. Church organs and similar instruments. Speaking machines. Vocal music.

Engineering, Architecture, Charts, Maps and Graphic Representations.—(For Agricultural Engineering, see Class 680; for Mining Engineering, see Class 120.) *Class* 330. Civil engineering; land surveying, public lands, etc.; river, harbor and coast surveying; construction and maintenance of roads, streets, pavements, etc.; surveys and location of towns and cities, with systems of water supply and drainage; arched bridges of metal, stone, brick or beton; trussed girder bridges; suspension bridges; canals, aqueducts, reservoirs, construction of dams; hydraulic engineering and means of arresting and controlling the flow of water. Submarine constructions, foundations, piers, docks, etc.—*Class* 331. Dynamic and industrial engineering; construction and working of machines; examples of planning and construction of manufacturing and metallurgical establishments.—*Class* 332. Railway engineering; location of railways, and the construction and management of railways.—*Class* 333. Military engineering.—*Class* 334. Naval engineering.—*Class* 335. Topograpical maps; marine and coast charts. Geological maps and sections. Botanical, agronomical and other maps, showing the extent and distribution of men, animals and terrestrial products; physical maps. Meteorological maps and bulletins; telegraphic routes and stations; railway and route maps; terrestrial and celestial globes; relief maps and models of portions of the earth's surface; profiles of ocean beds and routes of submarine cables.

Physical, Social and Moral Condition of Man.—*Class* 340. Physical development and condition. The nursery and its accessories. Gymnasiums, games and manly sports; skating, walking, climbing, ball-playing, acrobatic exercises, rowing, hunting, etc.—*Class* 341. Alimentation; markets, preparation and distribution of food.—*Class* 342. The

dwelling; sanitary conditions and regulations; domestic architecture. Dwellings characterized by cheapness, combined with the conditions essential to health and comfort. Fireproof structures. Hotels, club-houses, etc. Public baths.—*Class* 343. Commercial systems and appliances. Mercantile forms and methods, counting-houses and offices. Banks and banking. Saving and trust institutions. Insurance, fire, marine, life, etc. Commercial organizations, boards of trade, merchants, produce and stock exchanges. Corporations for commercial and manufacturing purposes. Railway and other transportation companies. Building and loan associations.—*Class* 344. Money.—Mints and coining. Collections of current coins. Historical collections. Tokens, etc. Bank notes and other paper circulating mediums. Commercial paper, bills of exchange, etc. Securities for payment of money, stocks, bonds, mortgages, ground rents, quit rents. Precautions against counterfeiting and misappropriation of money. —*Class* 345. Government and law.—Various systems of government. Departments of government; revenue and taxation, military organization, executive powers, legislative forms and authority, judicial functions and systems, police regulations, government charities. International relations; international law; diplomatic and consular service, etc., allegiance and citizenship; naturalization. Codes. Municipal government. Protection of property in inventions. Postal system and appliances. Punishment of crime. Prisons and prison management and discipline, police stations, houses of correction, reform schools, naval or marine discipline, punishment at sea.—*Class* 346. Benevolence.—General hospitals. Special hospitals for the eye and ear, for women, etc. Hospitals for contagious and infectious diseases. Hospitals for the insane, under State control, and private asylums. Quarantine systems and organizations. Sanitary regulations of cities. Dispensaries. Inebriate asylums. Lying-in asylums. Magdalen asylums. Asylums for infants and children. Foundling and orphan asylums, children's aid societies. Homes for the aged and infirm, homes for aged men and women, soldiers' homes, homes for the maimed and deformed, sailors' homes. Treatment of paupers. Almshouses, feeding the poor, lodging houses. Emigrant aid societies. Treatment of aborigines. Prevention of cruelty to animals.—*Class* 347. Co-operative associations. Political societies and organizations. Military organizations and orders. Trade unions and associations. Industrial organizations. Secret orders and fraternities.—*Class* 348. Religious organizations and systems; origin, nature, growth and extent of various religious systems and faiths; statistical, historical and other facts. Religious orders and societies and their objects. Societies and organizations for the propagation of systems of religion by missionary effort. Spreading the knowledge of religious systems by publications. Bible societies, tract societies, colportage. Systems and methods of religious instruction and training for the

young. Sunday-schools, furniture and apparatus. Associations for religious or moral improvement. Dispensing charities, church guilds.—*Class* 349. Art and industrial exhibitions; agricultural fairs, State and county exhibitions, national exhibitions, international exhibitions, international congresses, etc.

DEPARTMENT IV.—ART.

Sculpture.—*Class* 400. Figures and groups in stone, metal, clay or plaster.—*Class* 401. Bas-reliefs in stone or metal; electrotype copies.—*Class* 402. Medals, pressed and engraved; electrotypes of medals.—*Class* 403. Hammered and wrought work, *repousse* and *rehausse* work, embossed and engraved relief work.—*Class* 404. Cameos, intaglios, engraved stones, dies, seals, etc.—*Class* 405. Carvings in wood, ivory and metal.

Painting.—*Class* 410. Paintings in oil on canvas, panels, etc.—*Class* 411. Water-color pictures, aquarelles, miniatures, etc.—*Class* 412. Frescoes, cartoons for frescoes, etc.—*Class* 413. Painting with vitrifiable colors. Pictures on porcelain, enamel and metal.

Engraving and Lithography.—*Class* 420. Drawings with pen, pencil or crayons.—*Class* 421. Line engravings from steel, copper or stone.—*Class* 422. Wood engravings.—*Class* 423. Lithographs, zincographs, etc.—*Class* 424. Chromo-lithographs.

Photography.—*Class* 430.—Photographs on paper, metal, glass, wood, fabrics or enamel surfaces.—*Class* 431. Prints from photo-relief plates, carbon-prints, etc.—*Class* 432. Photo-lithographs, etc.

Industrial and Architectural Designs, Models and Decorations.—*Class* 440. Industrial designs.—*Class* 441. Architectural designs; studies and fragments, representations and projects of edifices, restorations from ruins and from documents.—*Class* 442. Decoration of interiors of buildings.—*Class* 443. Artistic hardware and trimmings, artistic castings, forged metal work for decoration, etc.

Decoration with Ceramic and Vitreous Materials; Mosaic and Inlaid Work.—*Class* 450. Mosaic and inlaid work in stone.—*Class* 451. Mosaic and inlaid work in tiles, tessaræ, glass, etc.—*Class* 452. Inlaid work in wood and metal, parquetry, inlaid floors, tables, etc.—*Class* 453. Stained glass.—*Class* 454. Miscellaneous objects of art.

DEPARTMENT V.—MACHINERY.

Machines, Tools and Apparatus of Mining, Metallurgy, Chemistry and the Extractive Arts.—*Class* 500. Rock drilling.—*Class* 501. Well and shaft boring.—*Class* 502. Machines, apparatus and implements for coal cutting.—*Class* 503. Hoisting machinery and accessories.—*Class* 504. Pumping, draining and ventilating.—*Class* 505. Crushing, grinding, sorting and dressing; breakers, stamps, mills, pans, screens, sieves, jigs, concentrators.—*Class* 506. Furnaces, smelt-

ing apparatus and accessories.—*Class* 507. Machinery used in Bessemer process.—*Class* 508. Chemical manufacturing machinery. Electroplating. —*Class* 509. Gas machinery and apparatus.

Machines and Tools for Working Metal, Wood and Stone.—*Class* 510. Planing, sawing, veneering, grooving, mortising, tonguing, cutting, moulding, stamping, carving and cask-making machines, etc., cork-cutting machines.—*Class* 511. Direct acting steam sawing machines with gang saws.—*Class* 512. Rolling mills, bloom squeezers, blowing fans.—*Class* 513. Furnaces and apparatus for casting metals, with specimens of work.—*Class* 514. Steam-, trip- and other hammers, with specimens of work, anvils, forges.—*Class* 515. Planing, drilling, slotting, turning, shaping, punching, stamping and cutting machines. Wheel cutting and dividing machines, emery wheels, drills, taps, gauges, dies, etc.—*Class* 516. Stone-sawing and planing machines, dressing, shaping and polishing, sand blasts, Tilghman's machines, glass-grinding machines, etc.—*Class* 517. Brick, pottery and tile machines. Machines for making artificial stone.—*Class* 518. Furnaces, moulds, blow-pipes, etc., for making glass and glass-ware.

Machines and Implements of Spinning, Weaving, Felting and Paper-Making.—*Class* 520. Machines for the manufacture of silk goods.—*Class* 521. Machines for the manufacture of cotton goods.—*Class* 522. Machines for the manufacture of woollen goods.—*Class* 523. Machines for the manufacture of linen goods.—*Class* 524. Machines for the manufacture of rope and twine, and miscellaneous fibrous materials.—*Class* 525. Machines for the manufacture of paper, and felting. —*Class* 526. Machines for the manufacture of India-rubber goods.—*Class* 527. Machines for the manufacture of mixed fabrics.

Machines, Apparatus and Implements used in Sewing and Making Clothing and Ornamental Objects.— —*Class* 530. Machines used in the manufacture of tapestry, including carpets, lace, floor-cloth, fancy embroidery, etc.—*Class* 531. Sewing and knitting machines, clothes-making machines.—*Class* 532. Machines for preparing and working leather.—*Class* 533. Machines for making boots and shoes.—*Class* 534. Machines for ironing, drying and scouring.—*Class* 535. Machines for making clocks and watches.—*Class* 536. Machines for making jewelry.—*Class* 537. Machines for making buttons, pins, needles, etc.

Machines and Apparatus for Type-setting, Printing, Stamping, Embossing, and for Making Books and Paper-working.—*Class* 540. Printing presses.—*Class* 541. Type-casting machines, apparatus of stereotyping.—*Class* 542. Types and type-setting machines, type-writing machines.—*Class* 543. Printers' furniture. —*Class* 544. Book-binding machines.—*Class* 545. Paper-folding machines. —*Class* 546. Paper- and card-cutting machines.—*Class* 547. Envelope machines.

Motors and Apparatus for the Generation and Transmission of Power.—*Class* 550. Boilers and all steam- or gas-generating apparatus for motive purposes.—*Class* 551. Water-wheels, water-engines, hydraulic rams, wind-mills.—*Class* 552. Steam-, air- or gas-engines, electro-magnetic engines.—*Class* 553. Apparatus for the transmission of power, shafting, belting, cables, transmission of power by compressed air, etc., gearing, cables.—*Class* 554. Screw-propellers, wheels for the propulsion of vessels, and other motors.—*Class* 555. Implements and apparatus used in connection with motors, steam gauges, manometers, etc.

Hydraulic and Pneumatic Apparatus, Pumping, Hoisting and Lifting.—*Class* 560. Pumps and apparatus for lifting and moving liquids.—*Class* 561. Pumps and apparatus for moving and compressing air or gas.—*Class* 562. Pumps and blowing engines, blowers and ventilating apparatus.—*Class* 563. Hydraulic jacks, presses, elevators, lifts, meters, cranes.—*Class* 564. Fire engines, hand, steam or chemical, and fire-extinguishing apparatus, hose, ladders, fire-escapes, etc.—*Class* 565. Beer engines, soda-water machines, bottling apparatus, corking machines.—*Class* 566. Stop-valves, cocks, pipes, etc.—*Class* 567. Diving apparatus and machinery.—*Class* 568. Ice machines.

Railway Plant, Rolling Stock and Apparatus.—*Class* 570. Locomotives, models, drawings, plans, etc.—*Class* 571. Carriages, wagons, trucks, cars, etc.—*Class* 572. Brakes, buffers, couplings and snow-ploughs.—*Class* 573. Wheels, tires, axles, bearings, springs, etc.—*Class* 574. Permanent ways, ties, chairs, switches, etc.—*Class* 575. Station arrangements, signals, water-cranes, turn-tables.—*Class* 576. Miscellaneous locomotive attachments.—*Class* 577. Street railways and cars.

Machines used in Preparing Agricultural Products.—*Class* 580. Flour mills.—*Class* 581. Sugar-refining machines.—*Class* 582. Confectioners' machinery.—*Class* 583. Oil-making machinery.—*Class* 584. Tobacco-manufacturing machines.—*Class* 585. Mills for spices, coffee, etc.

Aerial, Pneumatic and Water Transportation.—*Class* 590. Suspended-cable railways.—*Class* 591. Transporting cables.—*Class* 592. Balloons, flying-machines, etc.—*Class* 593. Pneumatic railways, pneumatic despatch.—*Class* 594. Boats and sailing vessels; sailing vessels used in commerce, sailing vessels used in war; yachts and pleasure-boats; rowing boats of all kinds; life-boats and salvage apparatus, with life-rafts, belts, etc.; submarine armor, diving-bells, etc.; ice boats.—*Class* 595. Steamships, steamboats and all vessels propelled by steam.—*Class* 596. Vessels for carrying telegraph cables and railway trains, also coal barges, water boats and dredging machines, screw- and floating-docks, and for other special purposes.—*Class* 597. Steam capstans, windlass, deck-winches and steering apparatus, fans.

Machinery and Apparatus Especially Adapted to the Requirements of the Exhibition.—Boilers, engines, cranes, pumps, etc.

DEPARTMENT VI.—AGRICULTURE.

Arboriculture and Forest Products.—*Class* 600. Timber and trunks of trees, entire or in transverse or truncated sections, with specimens of barks, leaves, flowers, seed vessels and seed. Masts, spars, knees, longitudinal sections of trees, railway ties, ship timber, lumber roughly sawn, as planks, shingles, laths and staves. Timber and lumber prepared in various ways to resist decay and combustion; as by injection of salts of copper and zinc.—*Class* 601. Ornamental woods used in decorating and for furniture, as veneers of mahogany, rosewood, ebony, walnut, maple and Madrona.—*Class* 602. Dye-woods, barks and galls for coloring and tanning.—*Class* 603. Gums, resins, caoutchouc, gutta percha, vegetable wax.—*Class* 604. Lichens, mosses, fungi, pulu, ferns.—*Class* 605. Seeds, nuts, etc., for food and ornamental purposes.—*Class* 606.—Forestry. —Illustrations of the art of planting, managing and protecting forests; statistics.

Pomology.—*Class* 610. Fruits of temperate and semi-tropical regions, as apples, pears, quinces, peaches, nectarines, apricots, plums, grapes, cherries, strawberries and melons.—*Class* 611. Tropical fruits and nuts, oranges, bananas, plantains, lemons, pine-apples, pomegranates, figs, cocoanuts.

Agricultural Products.—*Class* 620. Cereals, grasses and forage plants.—*Class* 621. Leguminous plants and esculent vegetables.—*Class* 622. Roots and tubers.—*Class* 623. Tobacco, hops, tea, coffee and spices. —*Class* 624. Seeds and seed vessels.

Land Animals.—*Class* 630. Horses, asses, mules.—*Class* 631. Horned cattle.—*Class* 632. Sheep.—*Class* 633. Goats, alpaca, llama, camel.—*Class* 634. Swine.—*Class* 635. Poultry and birds.—*Class* 636. Dogs and cats.—*Class* 637. Wild animals.—*Class* 638. Insects, useful and injurious; honey bees, cochineal, silkworms.

Marine Animals, Fish Culture and Apparatus.—*Class* 640.—Marine animals.—Seals, cetaceans, etc., specimens living in aquaria, or stuffed, salted, preserved in alcohol or otherwise.—*Class* 641. Fishes, living or preserved.—*Class* 642. Pickled fish and parts of fish used for food.—*Class* 643. Crustaceans, echinoderms, beche de mer.—*Class* 644. Mollusks, oysters, clams, etc., used for food.—*Class* 645. Shells, corals and pearls.—*Class* 646. Whalebone, shagreen, fish glue, isinglass, sounds, fish-oil.—*Class* 647. Instruments and apparatus of fishing, nets, baskets, hooks and other apparatus used in catching fish.—*Class* 648.—Fish culture.—Aquaria, hatching pools, vessels for transporting roe and spawn, and other apparatus used in breeding, culture or preservation.

Animal and Vegetable Products.—(Used as food or as materials.)—*Class* 650. Sponges, sea-weed and other growths used for food or in the arts.—*Class* 651. The dairy.—Milk, cream, butter, cheese.—*Class* 652. Hides, furs and leather, tallow, oil and lard, ivory, bone, horn, glue.—*Class* 653. Eggs, feathers, down.—*Class* 654. Honey and wax.—*Class* 655. Animal perfumes, as musk, civet, ambergris.—*Class* 656. Preserved meats, vegetables and fruits, dried or in cans or jars; meat and vegetable extracts.—*Class* 657. Flour, crushed and ground cereals, decorticated grains.—*Class* 658. Starch and similar products.—*Class* 659. Sugar and syrups.—*Class* 660. Wines, alochol and malt liquors.—*Class* 661. Bread, biscuits, crackers and cakes.—*Class* 662. Vegetable oils.

Textile Substances of Vegetable or Animal Origin.—*Class* 665. Cotton on the stem, in the boll, ginned and baled.—*Class* 666. Hemp, flax, jute, ramie, etc., in primitive forms and in all stages of preparation for spinning.—*Class* 667. Wool in the fleece, carded and in bales.—*Class* 668. Silk in the cocoon and reeled.—*Class* 669. Hair, bristles.

Machines, Implements and Processes of Manufacture.—*Class* 670. Tillage.—Manual implements, spades, hoes, rakes. Animal-power machinery, ploughs, cultivators, horse-hoes, clod-crushers, rollers, harrows. Steam-power machinery, ploughs, breakers, harrows, cultivators.—*Class* 671. Planting.—Manual implements, corn-planters and hand-drills. Animal-power machinery, grain- and manure-drills, corn- and cotton-planters; steam-power machinery, grain- and manure-drills.—*Class* 672. Harvesting.—Manual implements, grain-cradles, sickles, reaping-hooks; animal-power machinery, reapers and headers; mowers, tedders, rakes, hay-elevators and hay-loaders. Potato diggers.—*Class* 673. Preparatory to marketing.—Thrashers, clover-hullers, corn-shellers, winnowers, hay, cotton, wine, oil- and sugar-making apparatus.—*Class* 674. Applicable to farm economy.—Portable and stationary engines, chaffers, hay- and feed-cutters, slicers, pulpers, corn-mills, farm boilers and steamers, incubators.—*Class* 675. Dairy fittings and appliances.—Churns for hand and power, butter-workers, cans and pails, cheese-presses, vats and apparatus.

Agricultural Engineering and Administration.—*Class* 680. Laying out and improving farms.—Clearing (stump-extractors), construction of roads, draining, irrigating, models of fences, gates, drains, out-falls, dams, embankments, irrigating machinery, stack building and thatching.—*Class* 681. Commercial fertilizers, phosphatic, ammoniacal, calcareous, etc.—*Class* 682. Transportation.—Wagons, carts, sleds, harness, yokes, traction engines, and apparatus for road-making and excavating.—*Class* 683. Farm buildings.—Models and drawings of farm-houses and tenements, barns, stables, hop-houses, fruit-driers, ice-houses, windmills, granaries, barracks, apiaries, cocooneries, aviaries, abattoirs and dairies.

Tillage and General Management.—*Class* 690. Systems of planting and cultivation.—*Class* 691. Systems of draining and application of manures.—*Class* 692. Systems of breeding and stock feeding.

DEPARTMENT VII.—HORTICULTURE.

Ornamental Trees, Shrubs and Flowers.—*Class* 700. Ornamental trees and shrubs, evergreens.—*Class* 701. Herbaceous perennial plants.—*Class* 702. Bulbous and tuberous-rooted plants.—*Class* 703. Decorative and ornamental foliage plants.—*Class* 704. Annuals and other soft-wooded plants, to be exhibited in successive periods during the season.—*Class* 705. Roses.—*Class* 706. Cactacea.—*Class* 707. Ferns, their management in the open air, and in ferneries, wardian cases, etc.—*Class* 708. New plants, with statement of their origin.—*Class* 709. Floral designs, etc.; cut flowers, bouquets, preserved flowers, leaves, sea-weeds; illustrations of plants and flowers; materials for floral designs; bouquet materials, bouquet holders, bouquet papers, models of fruits, vegetables and flowers.

Hothouses, Conservatories, Graperies and their Management.—*Class* 710. Hothouse and conservatory plants.—*Class* 711. Fruit trees under glass.—*Class* 712. Orchids and parasitic plants.—*Class* 713. Forcing and propagation of plants.—*Class* 714. Aquatic plants under glass or in aquaria, etc.—*Class* 715. Horticultural buildings, propagating houses, hot-beds, etc., and modes of heating them; structures for propagating and forcing small fruits.—*Class* 716. Portable or movable orchard houses and graperies, without artificial heat; frames, beds.

Garden Tools, Accessories of Gardening.—*Class* 720. Tools and implements; machines for the transplanting of trees, shrubs, etc.; portable forcing-pumps for watering plants in greenhouses, and methods of watering the garden and lawn.—*Class* 721. Receptacles for plants, flowerpots, plant-boxes, tubs, fern cases, jardinieres, etc.; window gardening; plant and flower stands, ornate designs in iron, wood and wire.—*Class* 722. Ornamental wire-work—viz., fences, gates, trellis bordering of flower-beds, porches; park seats, chairs, garden statuary, vases, fountains, etc.; designations, labels, numbers.

Garden Designing, Construction and Management.—*Class* 730.—Laying out gardens.—Designs for the laying out of gardens and the improvement of private residences; designs for commercial gardens, nurseries, graperies; designs for the parterre.—*Class* 731. Treatment of water for ornamental purposes, cascades, fountains, reservoirs, lakes.—*Class* 732. Formation and after treatment of lawns.—*Class* 733.—Garden construction, buildings, etc.—Rock-work, grottoes; rustic constructions and adornments for private gardens and public grounds.—*Class* 734. Planting, fertilizing and cultivating.

LOCATION.	DEPARTMENTS.
Main Building.	I.—Mining and Metallurgy.
	II.—Manufactures.
	III.—Education and Science.
Art Gallery.	IV.—Art.
Machinery Building.	V.—Machinery.
Agricultural Building.	VI.—Agriculture.
Horticultural Building.	VII.—Horticulture.

CLASSES.	GROUPS.
100–109	Minerals, Ores, Stone, Mining Products.
110–119	Metallurgical Products.
120–129	Mining Engineering.
200–205	Chemical Manufactures.
206–216	Ceramics, Pottery, Porcelain, Glass, etc.
217–227	Furniture, etc.
228–234	Yarns and Woven Goods of Vegetable or Mineral Materials.
235–241	Woven and Felted Goods of Wool, etc.
242–249	Silk and Silk Fabrics.
250–257	Clothing, Jewelry, etc.
258–264	Paper, Blank Books, Stationery.
265–271	Weapons, etc.
272–279	Medicine, Surgery, Prothesis.
280–284	Hardware, Edge Tools, Cutlery and Metallic Products.
285–291	Fabrics of Vegetable, Animal or Mineral Materials.
292–296	Carriages, Vehicles and Accessories.
300–309	Educational Systems, Methods and Libraries.
310–319	Institutions and Organizations.
320–329	Scientific and Philosophical Instruments and Methods.
330–339	Engineering, Architecture, Maps, etc.
340–349	Physical, Social and Moral Condition of Man.
400–409	Sculpture.
410–419	Painting.
420–429	Engraving and Lithography.
430–439	Photography.
440–449	Industrial and Agricultural Designs, etc.
450–459	Ceramic Decorations, Mosaics, etc.
500–509	Machines, Tools, etc., of Mining, Chemistry, etc.
510–519	Machines and Tools for Working Metal, Wood and Stone.
520–529	Machines and Implements of Spinning, Weaving, etc.
530–539	Machines, etc., used in Sewing, Making Clothing, etc.
540–549	Machines for Printing, Making Books, Paper Working, etc.
550–559	Motors, Power Generators, etc.
560–569	Hydraulic and Pneumatic Apparatus.
570–579	Railway Plant, Rolling Stock, etc.
580–589	Machinery used in Preparing Agricultural Products.
590–599	Aërial, Pneumatic and Water Transportation. [Exhibition. Machinery and Apparatus especially adapted to the requirements of the
600–609	Arboriculture and Forest Products.
610–619	Pomology.
620–629	Agricultural Products.
630–639	Land Animals.
640–649	Marine Animals, Fish Culture and Apparatus.
650–662	Animal and Vegetable Products.
665–669	Textile Substances of Vegetable or Animal Origin.
670–679	Machines, Implements and Processes of Manufacture.
680–689	Agricultural Engineering and Administration.
690–699	Tillage and General Management.
700–709	Ornamental Trees, Shrubs and Flowers.
710–719	Hothouses, Conservatories, Graperies.
720–729	Garden Tools, Accessories of Gardening.
730–739	Garden Designing, Construction and Management.

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APPENDIX.

TABLE I.

Statement showing the Number and Class of Vessels Built, and the Tonnage thereof, in the several States and Territories of the United States, from 1815 *to* 1873, *inclusive.*

Year.	Ships, etc.*	Sloops, etc.†	Steamers.	Total Number.	Total Tonnage.
1815	1041	274	...	1315	154,624
1816	979	424	...	1403	131,668
1817	679	394	...	1073	86,393
1818	566	332	...	898	82,421
1819	608	243	...	851	79,817
1820	382	152	...	534	47,784
1821	379	127	...	506	55,856
1822	455	168	...	623	75,346
1823	442	165	15	622	75,007
1824	589	166	26	781	90,939
1825	791	168	35	994	114,997
1826	740	227	45	1012	126,438
1827	672	241	38	951	104,342
1828	655	196	33	884	93,375
1829	597	145	43	785	77,098
1830	484	116	37	637	58,094
1831	583	94	34	711	85,762
1832	863	122	100	1085	144,539
1833	936	185	65	1186	161,626
1834	689	180	68	937	118,330
1835	376	100	30	506	46,238
1836	602	164	125	891	113,627
1837	646	168	135	949	122,987
1838	646	153	90	889	113,135
1839	611	122	125	858	120,989
1840	584	224	64	872	118,309
1841	525	157	78	760	118,893
1842	479	404	137	1020	129,083
1843	230	173	79	482	43,617
1844	324	279	163	766	103,537
1845	533	342	163	1038	146,018
1846	840	355	225	1420	188,203
1847	1008	392	198	1598	243,732
1848	1129	547	175	1851	318,075
1849	969	370	208	1547	256,577
1850	911	290	259	1460	272,218
1851	808	326	233	1367	298,203
1852	918	267	259	1444	351,493
1853	1045	394	271	1710	425,571
1854	1107	386	281	1774	535,616
1855	1112	669	253	2034	583,450
1856	1003	479	221	1703	469,393
1857	813	258	263	1334	378,804
1858	699	400	226	1325	242,286
1859	414	284	172	870	156,601
1860	518	289	264	1071	212,892
1861	508	371	264	1143	233,194
1862	286	397	183	866	175,075
1863	343	1113	367	1823	310,884

* This includes brigs, barks and schooners.

† This includes canal-boats and barges.

TABLE I.—Continued.

Statement showing the Number and Class of Vessels Built, and the Tonnage thereof, in the several States and Territories of the United States, from 1815 *to* 1874, *inclusive.*

Year.	Ships, etc.*	Sloops, etc.†	Steamers.	Total Number.	Total Tonnage.
1864	579	1389	498	2466	415,740
1865	524	853	411	1788	383,805
1866	614	926	348	1888	336,146‡
1867	682	657	180	1519	303,528
1868	718	848	236	1802	285,304
1869	633	816	277	1726	275,230
1870	619	709	290	1618	276,953
1871	552	901	302	1755	273,226
1872	451	900	292	1643	209,052
1873	648	1221	402	2271	359,245
1874	748	995	404	2147	432,725

* This includes brigs, barks and schooners. † This includes canal-boats and barges.

‡ The tonnage is given in accordance with the new measurement from 1866, that mode having been adopted in 1865. In some of the other returns several years elapsed before uniformity in this respect was secured.

TABLE II.

Statement exhibiting the Amount of Tonnage of the United States Merchant Marine annually from 1789 *to* 1873, *inclusive.*

Year.	Registered Vessels.*	Enrolled and Licensed Vessels.†	Total.‡	Annual Increase or Decrease (—) per ct.
1789	123,893	77,669	201,562	
1790	346,254	132,123	478,377	137.33
1791	363,110	139,036	502,146	4.96
1792	411,438	153,019	564,457	12.35
1793	367,734	153,030	520,764	—7.74
1794	438,863	189,755	628,618	20.71
1795	529,471	218,494	747,965	19.00
1796	576,733	255,167	831,900	11.22
1797	597,777	279,135	876,912	5.41
1798	603,376	294,952	898,328	2.49
1799	662,197	277,211	939,408	4.57
1800	669,921	302,571	972,492	3.52
1801	632,907	314,669	947,576	—2.56
1802	560,381	331,725	892,106	—5.85

* Vessels are *registered* for foreign traffic and the whale-fishery, and *enrolled* and *licensed* for coast and inland (river and lake) trade and for the cod- and mackerel-fisheries.

† This includes licensed vessels under 20 tons burden, which are kept separate in the government account, but included in the totals. The tonnage of these amounted to 9203 in 1793 and 22,527 in 1794. The highest point reached by it was 66,602 tons, in 1828, and of late years its average has been in the neighborhood of 50,000 tons.

‡ Steam tonnage of both classes is included in this total as well as in each class. Special statistics will be given in Table III.

TABLE II.—CONTINUED.

Statement exhibiting the Amount of Tonnage of the United States Merchant Marine annually from 1789 to 1873, inclusive.

Year.	Registered Vessels.*	Enrolled and Licensed Vessels.†	Total.‡	Annual Increase or Decrease (—) per ct.
1803	597,157	352,015	949,172	6.39
1804	672,530	369,874	1,042,404	1.00
1805	749,341	391,026	1,140,367	9.40
1806	808,285	400,452	1,208,737	5.99
1807	848,307	420,241	1,268,548	4.95
1808	769,054	473,541	1,242,595	—2.04
1809	910,059	440,223	1,350,282	8.66
1810	984,269	440,514	1,424,783	5.51
1811	768,852	463,650	1,232,502	—13.49
1812	760,624	509,373	1,269,997	2.95
1813	674,853	491,775	1,166,628	—8.14
1814	674,633	484,576	1,159,209	—0.63
1815	854,295	513,833	1,368,128	18.02
1816	800,760	571,459	1,372,219	0.29
1817	809,725	590,187	1,399,912	0.20
1818	606,089	619,096	1,225,185	—10.34
1819	612,930	647,822	1,260,752	0.04
1820	619,048	661,119	1,280,167	1.54
1821	619,896	679,062	1,298,958	1.47
1822	628,150	696,549	1,324,699	1.98
1823	639,921	696,645	1,336,566	0.89
1824	669,973	719,190	1,389,163	3.94
1825	700,787	722,323	1,423,110	2.44
1826	737,978	796,213	1,534,191	7.80
1827	747,170	873,437	1,620,607	5.63
1828	812,619	928,773	1,741,392	7.45
1829	650,143	610,665	1,260,798	—27.60
1830	576,475	615,301	1,191,776	—5.47
1831	620,452	647,394	1,267,846	6.38
1832	686,990	752,460	1,439,450	13.53
1833	750,027	856,124	1,606,151	11.59
1834	857,438	901,469	1,758,907	9.51
1835	885,822	939,119	1,824,941	3.13
1836	897,775	984,327	1,882,102	3.13
1837	810,447	1,086,239	1,896,686	0.24
1838	822,592	1,173,048	1,995,640	5.22
1839	834,245	1,262,234	2,096,479	5.05
1840	899,765	1,280,999	2,180,764	4.02
1841	945,803	1,184,941	2,130,744	—2.30
1842	975,359	1,117,032	2,092,391	—1.80
1843	1,009,305	1,149,298	2,158,603	3.16
1844	1,068,765	1,211,331	2,280,096	5.63

* Vessels are *registered* for foreign traffic and the whale-fisbery, and *enrolled* and *licensed* for coast and inland (river and lake) trade and for the cod- and mackerel-fisheries.

† This includes licensed vessels under 20 tons burden, which are kept separate in the government account, but included in the totals. The tonnage of these amounted to 9203 in 1793 and 22,527 in 1794. The highest point reached by it was 66,602 tons, in 1828, and of late years its average has been in the neighborhood of 50,000 tons.

‡ Steam tonnage of both classes is included in this total as well as in each class. Special statistics will be given in Table III.

TABLE II.—CONTINUED.

Statement exhibiting the Amount of Tonnage of the United States Merchant Marine annually from 1789 to 1874, inclusive.

Year.	Registered Vessels.*	Enrolled and Licensed Vessels.†	Total.‡	Annual Increase or Decrease (—) per ct.
1845	1,095,172	1,221,829	2,417,001	6.00
1846	1,130,287	1,431,798	2,562,085	6.00
1847	1,241,313	1,597,733	2,839,046	10.81
1848	1,360,887	1,793,156	3,154,043	11.09
1849	1,438,942	1,895,074	3,334,016	5.71
1850	1,585,711	1,949,743	3,535,454	6.04
1851	1,726,307	2,046,132	3,772,439	6.70
1852	1,899,448	2,238,992	4,138,440	9.70
1853	2,103,674	2,303,336	4,407,010	6.49
1854	2,333,819	2,469,083	4,802,902	8.96
1855	2,535,136	2,676,865	5,212,001	8.52
1856	2,491,403	2,380,250	4,871,653	—2.60
1857	2,463,968	2,476,875	4,940,843	1.41
1858	2,499,742	2,550,066	5,049,808	2.21
1859	2,507,402	2,637,636	5,145,038	1.90
1860	2,546,237	2,807,631	5,353,868	4.06
1861	2,642,628	2,897,185	5,539,813	3.47
1862	2,291,251	2,820,913	5,112,164	—4.51
1863	2,026,114	3,128,942	5,155,056	0.84
1864	1,581,894	3,404,506	4,986,400	—3.85
1865⁂	510,579	1,069,415	1,570,994	2.21
1865‖	1,092,004	2,424,784	3,516,788	
1866⁂	1,108,531	2,259,548	3,368,479	—15.42
1866‖	384,395	557,904	942,299	
1867⁂	1,353,236	2,604,579	3,957,515	—0.12
1867‖	214,796	132,176	346,972	
1868⁂	1,532,283	2,786,027	4,318,310	1.10
1868‖	33,449	.....	33,449	
1869⁂	1,566,422	2,578,219	4,144,641	—4.76
1870¶	1,516,800	2,857,465	4,246,507	2.46
1871	1,425,142	3,027,099	4,282,607	0.85
1872	1,410,648	3,027,099	4,437,747	3.62
1873	1,423,288	3,272,739	4,696,027	5.82
1874	1,428,923	3,371,729	4,800,652	2.23

* Vessels are *registered* for foreign traffic and the whale-fishery, and *enrolled* and *licensed* for coast and inland (river and lake) trade and for the cod- and mackerel-fisheries.

† This includes licensed vessels under 20 tons burden, which are kept separate in the government account, but included in the totals. The tonnage of these amounted to 9203 in 1793 and 22,527 in 1794. The highest point reached by it was 66,602 tons, in 1828, and of late years its average has been in the neighborhood of 50,000 tons.

‡ Steam tonnage of both classes is included in this total as well as in each class. Special statistics will be given in Table III.

⁂ New measurement. ‖ Old measurement.

¶ New measurement from 1869. It was introduced in 1865, but a portion of the returns were made in the old measurement for several years, as is indicated in the table.

TABLE III.

Statement exhibiting the Amount of Steam Tonnage of the United States Merchant Marine annually from 1823 to 1874, inclusive.

Year.	Registered.	Enrolled and Licensed.	Total.	Annual Increase or Decrease (—) per ct.
1823	.....	24,879	24,879	
1824	.....	21,610	21,610	—13.12
1825	.....	23,061	23,061	6.71
1826	.....	34,059	34,059	47.61
1827	.....	40,198	40,198	18.00
1828	.....	39,418	39,418	—1.94
1829	.....	54,037	54,037	37.15
1830	1,419	63,053	64,472	19.32
1831	871	33,574	34,445	—46.55
1832	181	90,633	90,814	165.31
1833	545	101,305	101,850	12.15
1834	340	122,474	122,814	20.59
1835	340	122,474	122,814	0.00
1836	454	145,102	145,556	18.52
1837	1,104	153,661	154,765	6.32
1838	2,791	119,683	193,423	24.90
1839	5,149	199,789	204,938	5.95
1840	4,155	198,154	202,309	—1.32
1841	746	174,342	175,088	—13.40
1842	4,701	224,960	229,661	31.10
1843	5,373	231,494	236,867	3.14
1844	6,900	265,270	272,170	14.91
1845	6,492	319,527	326,019	19.78
1846	6,287	341,606	347,893	6.70
1847	5,631	399,210	404,841	16.36
1848	16,068	411,823	427,891	5.69
1849	20,870	441,525	462,395	8.06
1850	44,429	481,005	525,434	13.67
1851	62,390	521,217	583,607	11.07
1852	79,704	554,536	634,240	8.68
1853	90,520	514,098	604,618	—4.67
1854	95,036	581,571	676,607	11.90
1855	115,045	655,240	770,285	13.85
1856	89,715	583,362	673,077	—12.63
1857	86,873	618,911	705,784	4.87
1858	78,027	650,363	728,390	3.20
1859	92,748	676,005	768,753	5.66
1860	97,296	770,641	867,937	12.90
1861	102,608	774,596	877,204	1.06
1862	113,998	596,465	710,463	—7.72
1863	133,215	442,304	575,519	—18.99
1864	106,519	853,816	960,335	66.86
1865*	28,469	338,720	367,189	11.12
1865†	69,539	630,411	699,950	
1866*	155,513	771,754	926,267	1.60
1866†	42,776	114,269	157,045	
1867*	165,522	957,458	1,122,980	10.02
1867†	32,593	36,307	68,900	
1868*	221,939	977,476	1,199,415	0.63

* New measurement, adopted in 1865. † Old measurement.

TABLE III.—CONTINUED.

Statement exhibiting the Amount of Steam Tonnage of the United States Merchant Marine annually from 1823 *to* 1874, *inclusive.*

Year.	Registered.	Enrolled and Licensed.	Total.	Annual Increase or Decrease (—) per ct.
1869*	213,252	890,316	1,103,568	—7.99
1870	192,544	882,551	1,075,095	—2.57
1871	180,914	906,723	1,087,637	1.16
1872	177,666	933,887	1,111,553	2.19
1873	193,423	963,020	1,156,443	4.03
1874	195,245	930,782	1,126,027	—2.63

* New measurement from 1868, up to which date, as indicated by the table, a portion of the returns were made in the old measurement.

TABLE IV.

Annual Receipts, Expenditures and National Debt of the United States from March 4, 1789, *to June* 30, 1875.

Year.	Receipts.	Expenditures.	National Debt.
1789 } * 1791 }	$10,210,025	$7,207,539	$75,463,476
1792	8,740,766	9,141,569	77,227,924
1793	5,720,624	7,529,575	80,352,634
1794	10,041,101	9,302,124	78,427,404
1795	9,419,802	10,435,069	80,747,587
1796	8,740,329	8,367,776	83,762,172
1797	8,758,916	8,626,012	82,064,479
1798	8,209,070	8,613,517	79,228,529
1799	12,621,459	11,077,043	78,408,669
1800	12,451,184	11,989,739	82,976,294
1801	12,945,455	12,273,376	83,038,050
1802	15,001,391	13,276,084	80,712,632
1803	11,064,097	11,258,983	77,054,686
1804	11,835,840	12,624,646	86,427,120
1805	13,689,508	13,727,124	82,312,150
1806	15,608,828	15,070,093	75,723,270
1807	16,398,019	11,292,292	69,218,398
1808	17,062,544	16,764,584	65,196,317
1809	7,773,473	13,867,226	57,023,392
1810	12,144,206	13,319,986	53,173,217
1811	14,431,838	13,601,808	48,005,587
1812	22,639,032	22,279,121	45,209,737
1813	40,524,844	39,190,520	55,962,827
1814	34,559,536	38,028,230	81,487,846
1815	50,961,237	39,582,493	99,833,660
1816	57,171,421	48,244,495	127,334,933
1817	33,833,592	40,877,646	123,491,965

* From March 4, 1789, to December 31, 1791. Fractions of a dollar are omitted throughout this table.

TABLE IV.—Continued.

Annual Receipts, Expenditures and National Debt of the United States from March 4, 1789, to June 30, 1875.

Year.	Receipts	Expenditures.	National Debt.
1818	$21,593,936	$35,104,875	$103,466,633
1819	24,605,665	24,044,199	95,529,648
1820	20,881,493	21,763,024	91,015,566
1821	19,573,703	19,090,572	89,987,427
1822	20,232,427	17,676,592	93,546,676
1823	20,540,666	15,314,171	90,875,877
1824	24,381,212	31,898,538	90,269,777
1825	26,840,858	23,585,804	83,788,432
1826	25,260,434	24,103,398	81,054,059
1827	22,966,363	22,656,764	73,987,357
1828	24,763,629	25,459,479	67,475,043
1829	24,827,627	25,044,358	58,421,413
1830	24,844,116	24,585,281	48,565,406
1831	28,526,820	30,038,446	39,123,191
1832	31,865,561	34,356,698	24,322,235
1833	33,948,426	24,257,298	7,001,032
1834	21,791,935	24,601,982	4,760,082
1835	35,430,087	17,573,141	351,289
1836	50,826,796	30,868,164	291,089
1837	27,883,853	37,265,037	1,878,223
1838	39,019,382	39,455,438	4,857,660
1839	33,881,242	37,614,936	11,983,737
1840	25,032,193	28,226,533	5,125,077
1841	30,519,477	31,797,530	6,737,398
1842	34,773,744	32,936,876	15,028,486
1843*	20,782,410	12,118,105	27,203,450
1844	31,198,555	33,642,010	24,748,188
1845	29,941,853	30,490,408	17,093,794
1846	29,699,967	27,632,282	16,750,926
1847	55,338,168	60,520,851	38,956,623
1848	56,992,479	60,665,143	48,526,379
1849	59,796,892	56,386,422	64,704,693
1850	47,649,388	44,604,718	64,228,238
1851	52,762,704	48,476,104	62,560,395
1852	49,893,115	46,712,608	65,131,692
1853	61,500,102	54,577,061	67,340,628
1854	73,802,291	75,473,119	47,242,206
1855	65,351,374	66,164,775	39,969,731
1856	74,056,899	72,726,341	30,963,909
1857	68,969,212	71,274,587	29,060,386
1858	70,372,665	82,062,186	44,910,777
1859	81,773,965	83,678,642	58,754,699
1860	76,841,407	77,055,125	64,769,703
1861	86,835,900	84,578,834	90,867,828
1862	581,628,181	570,841,700	514,211,371
1863	776,682,361	895,796,630	1,098,793,181
1864	884,076,646	865,234,087	1,740,690,489
1865	1,418,210,629	1,290,312,982	2,682,593,026
1866	1,273,960,215	1,141,072,666	2,783,425,879

* To June 30, on which day the fiscal year of the government has since closed.

TABLE IV.—CONTINUED.

Annual Receipts, Expenditures and National Debt of the United States from March 4, 1789, to June 30, 1875.

Year.	Receipts.	Expenditures.	National Debt.
1867	$1,131,060,920	$1,093,079,655	$2,692,199,215
1868	1,117,991,542	1,069,889,970	2,636,320,964
1869*	609,621,828	584,777,966	2,489,500,484
1870	696,729,873	309,653,560	2,386,358,599
1871	534,234,240	292,177,188	2,292,030,834
1872	374,106,867	377,478,216	2,146,685,957
1873	333,738,204	340,843,571	2,135,020,974
1874	322,186,231	302,633,873	2,139,897,861
1875	288,000,051	274,623,392	2,128,688,726

* In this and the succeeding years the cash balance in the Treasury is deducted from the outstanding principal of the debt.

TABLE V.

Statement (in bushels) of the crops of Wheat, Maize (Indian Corn), Oats, Barley and Rye in 1840, 1850, 1860 *and* 1862–1874. *Compiled mainly from the returns of the New York Produce Exchange.*

Year.	Wheat.	Maize.	Oats.	Barley.	Rye.
1840	84,821,065	377,492,388	123,054,990	4,161,210	18,640,486
1850	100,164,256	591,630,564	146,565,140	5,165,136	14,183,094
1860	170,176,027	827,094,527	172,089,095	15,813,604	20,965,046
1862	186,763,483	564,629,348	170,738,705	17,679,089	20,593,476
1863	190,888,239	451,153,378	174,650,228	17,754,351	20,796,287
1864	160,695,823	530,451,403	175,990,194	10,632,178	19,872,975
1865	148,522,829	704,427,853	225,252,295	11,301,286	19,543,905
1866	151,999,906	867,946,295	268,141,078	11,283,807	20,864,944
1867	212,441,400	768,320,000	278,698,000	25,727,000	23,184,000
1868	224,036,600	906,527,000	254,960,800	22,896,100	22,504,800
1869	260,146,900	874,320,000	288,334,000	28,652,200	22,527,900
1870	235,884,700	1,094,255,000	247,277,400	26,295,400	15,473,600
1871	230,722,400	991,898,000	255,743,000	26,718,500	15,365,500
1872	249,997,100	1,092,719,000	271,747,000	26,846,400	14,888,600
1873	281,254,700	932,247,000	270,340,000	32,044,491	15,142,000
1874	305,000,000	854,000,000	240,000,000	32,704,000	14,891,000

NOTE.—There are scarcely any returns from the Southern States (excepting Maryland and Kentucky) included in any of the figures for 1862–1865, inclusive. This will account for the smallness of the reported maize crop in those years. The returns for 1873 are taken from the *Report of the Department of Agriculture* for that year, and those for 1874 are from the *Annual Cyclopædia.*

TABLE VI.

Cotton Production and Trade for 49 years. Mainly from Appletons' American Cyclopædia.

Years ending August 31.	Production. Bales.	Consumption. Bales.	Exports. Bales.	Average weight per bale. Lbs.	Average price in New York. Cents.	Average price in Liverpool. Pence.
1825–26	720,027	.....	.....	.....	12.19	5.85
1826–27	957,281	149,516	854,000	331	9.29	5.79
1827–28	720,593	120,593	600,000	335	10.32	5.84
1828–29	870,415	118,853	740,000	341	9.88	5.32
1829–30	976,845	126,512	839,000	339	10.04	6.44
1830–31	1,038,847	182,142	773,000	341	9.71	5.72
1831–32	987,477	173,800	892,000	360	9.38	6.22
1832–33	1,070,438	194,412	867,000	350	12.32	7.87
1833–34	1,205,394	196,413	1,028,000	363	12.90	8.10
1834–35	1,254,328	216,888	1,023,500	367	17.45	9.13
1835–36	1,360,725	236,733	1,116,000	373	16.50	8.79
1836–37	1,423,930	222,540	1,169,000	379	13.25	6.09
1837–38	1,801,497	246,063	1,575,000	379	10.14	6.28
1838–39	1,360,532	276,018	1,074,000	384	13.36	7.19
1839–40	2,177,835	295,193	1,876,000	383	8.92	5.42
1840–41	1,634,954	267,850	1,313,500	394	9.50	5.73
1841–42	1,683,574	267,850	1,465,500	397	7.85	4.86
1842–43	2,378,875	325,129	2,010,000	409	7.25	4.37
1843–44	2,030,409	346,750	1,629,500	412	7.73	4.71
1844–45	2,394,503	389,000	2,083,700	415	5.63	3.92
1845–46	2,100,537	422,000	1,666,700	411	7.87	4.80
1846–47	1,778,651	428,000	1,241,200	431	11.21	6.03
1847–48	2,439,786	616,044	1,858,000	417	8.03	3.93
1848–49	2,866,938	642,485	2,228,000	436	7.55	4.09
1849–50	2,223,718	613,498	1,590,200	429	12.34	7.10
1850–51	2,454,442	485,614	1,988,710	416	12.14	5.51
1851–52	3,126,310	689,603	2,443,646	428	9.50	5.05
1852–53	3,416,214	803,725	2,528,400	428	11.02	5.54
1853–54	3,074,979	737,236	2,319,148	430	10.97	5.31
1854–55	2,982,634	716,417	2,244,209	434	10.39	5.60
1855–56	3,665,557	770,739	2,954,606	420	10.30	6.22
1856–57	3,093,737	819,936	2,252,657	444	13.51	7.73
1857–58	3,257,339	595,562	2,590,455	442	12.23	6.91
1858–59	4,018,914	927,651	3,021,403	447	12.08	6.68
1859–60	4,861,292	978,043	3,774,173	461	11.00	5.97
1860–61	3,849,469	843,740	3,127,568	477	13.01	8.50
1861–62*	.....	.....	.....	.....	31.29	18.37
1862–63	.....	.....	.....	.....	67.21	22.46
1863–64	.....	.....	.....	.....	101.50	27.17

* For obvious reasons, statistics are wanting, with the exception of prices, for the four years of the civil war. The prices are for middling upland. The production of sea-island cotton is included, which has varied in recent years from 47,592 bales in 1858–59 to 19,912 in 1873–74. The reader should remember that the price given is the *average* price for the whole year. The highest price, between January 1 and August 31, 1864, was $1.65, and the lowest 78 cents. A higher point ($1.80) was reached during September, 1864, but the low prices during the last five months of the year 1864–65 (from 35 to 48 cents) brought down the average, as is shown by the table. We have depended for these latter statements upon the maximum and minimum prices at the beginning of each month, for the years 1864–1873, given in the *Report on Commerce and Navigation* for 1873.—Ed. U. S. Gazetteer and Guide.

TABLE VI.—CONTINUED.

Cotton Production and Trade for 49 years. Mainly from Appletons' American Cyclopædia.

Years ending August 31.	Production. Bales.	Consumption. Bales.	Exports. Bales.	Average weight per bale. Lbs.	Average price in New York. Cents.	Average price in Liverpool. Pence.
1864–65	.....	.....	.....	.....	83.38	19.11
1865–66	2,269,316	666,100	1,554,664	441	43.20	15.30
1866–67	2,097,254	770,030	1,557,054	444	31.59	10.98
1867–68	2,519,554	906,636	1,655,816	445	24.85	10.52
1868–69	2,366,467	926,374	1,465,880	444	29.01	12.12
1869–70	3,122,551	930,736	2,206,480	440	23.98	9.89
1870–71	4,362,317	1,019,446	3,166,742	442	16.95	8.55
1871–72	3,014,351	1,137,540	1,957,314	443	20.48	10.78
1872–73	3,930,508	1,251,127	2,679,986	464	18.15	9.65
1873–74	4,170,388	1,220,943	2,840,981	469	16.60	.....

TABLE VII.

Exports and Imports of the United States for each Fiscal Year from 1790 *to the year ending June* 30, 1875, *inclusive.*

Year.	Exports.	Imports.	Year.	Exports.	Imports.
1790	$20,205,156	$23,000,000	1816	$81,920,452	$147,103,000
1791	19,012,041	29,200,000	1817	87,671,560	99,250,000
1792	20,753,098	31,500,000	1818	93,281,133	121,750,000
1793	26,109,572	31,000,000	1819	70,141,501	87,125,000
1794	33,026,233	34,600,000	1820	69,661,669	74,450,000
1795	47,989,472	69,756,268	1821	64,974,382	62,585,724
1796	67,064,097	81,436,164	1822	72,160,281	83,241,541
1797	56,850,206	75,379,406	1823	74,699,030	77,579,267
1798	61,527,097	68,551,700	1824	75,986,657	89,549,007
1799	78,665,522	79,089,148	1825	99,535,388	96,340,075
1800	70,970,780	91,252,768	1826	77,595,322	84,974,477
1801	94,115,925	111,363,511	1827	82,324,727	78,484,068
1802	72,483,160	76,333,333	1828	72,264,686	88,509,824
1803	55,800,038	64,666,666	1829	72,358,671	74,492,527
1804	77,699,074	185,000,000	1830	73,849,508	70,876,920
1805	95,566,021	120,600,000	1831	81,310,583	103,191,124
1806	101,536,963	129,410,000	1832	87,176,943	101,029,266
1807	108,343,151	138,500,000	1833	90,140,443	108,118,311
1808	22,430,960	56,990,000	1834	104,336,973	126,521,332
1809	52,203,333	59,400,000	1835	121,693,577	149,895,742
1810	66,657,970	88,406,000	1836	128,663,040	189,980,085
1811	61,316,883	53,400,000	1837	117,419,376	140,989,217
1812	38,527,236	77,030,000	1838	108,486,616	113,717,404
1813	27,855,927	22,005,000	1839	121,088,416	162,092,132
1814	6,937,441	12,965,000	1840	132,085,936	107,641,519
1815	52,557,753	113,041,274	1841	121,851,803	127,946,177

TABLE VII.—Continued.

Exports and Imports of the United States for each Fiscal Year from 1790 *to the year ending June* 30, 1875, *inclusive.*

Year.	Exports.	Imports.	Year.	Exports	Imports.
1842	$104,691,531	$100,152,087	1859	$356,789,461	$338,768,130
1843*	84,346,480	64,753,799	1860	400,122,296	342,162,541
1844	111,200,046	108,435,035	1861	243,971,277	286,598,135
1845	114,646,606	117,254,564	1862	229,938,985	275,357,051
1846	113,418,516	121,691,797	1863	322,359,254	252,919,920
1847	158,648,622	146,545,638	1864	301,984,561	329,562,895
1848	154,032,131	154,998,928	1865	336,697,123	234,339,810
1849	145,755,820	147,857,439	1866	550,684,228	445,512,158
1850	151,898,790	178,138,318	1867	438,577,312	411,733,309
1851	218,388,011	216,224,932	1868	454,301,713	378,409,448
1852	209,658,366	212,945,442	1869	413,960,890	437,314,255
1853	230,576,157	267,978,647	1870	499,092,143	462,377,587
1854	278,241,064	304,562,381	1871	562,518,651	541,493,708
1855	275,156,846	261,468,520	1872	501,164,971	640,337,540
1856	326,964,908	314,639,943	1873	578,938,985	663,617,147
1857	362,960,608	360,890,141	1874	652,913,445†	595,861,248†
1858	324,644,421	282,613,150	1875	665,528,391†	553,906,153†

* For the half year ending June 30, 1843, since which time the fiscal year of the United States government has ended on this day.

† Specie value.

TABLE VIII.

Areas and Density of Population of the United States and of the several States and Territories thereof in 1850, 1860 *and* 1870, *according to the Census Reports for these years.*

States and Territories.	1850.		1860.		1870.	
	Square miles.	Persons to a square mile.	Square miles.	Persons to a square mile.	Square miles.	Persons to a square mile.
The United States.....	2,980,959	7.78	3,026,494*	10.39	3,603,884*	10.70
The States.....	1,544,224	14.94	1,723,029	18.10	1,984,467	19.21
Alabama.....	50,722	15.21	Unchanged.	19.01	Unchanged.	19.66
Arkansas.....	52,198	4.02	"	8.34	"	9.30
California.....	188,981	0.49	"	2.01	"	2.29
Connecticut.....	4,750	78.06	"	96.87	"	113.15
Delaware.....	2,120	43.18	"	52.93	"	58.97
Florida.....	59,268	1.48	"	2.65	"	3.17
Georgia.....	58,000	15.62	"	18.23	"	20.42
Illinois.....	55,410	15.37	"	30.90	"	45.84

* The increase of the total area of the United States in 1860 over 1850 represents the territory acquired from Mexico known as the Gadsden purchase. The increase of the area shown by the returns of 1870 expresses the acquisition of Alaska.

TABLE VIII.—CONTINUED.

Areas and Density of Population of the United States and of the several States and Territories thereof in 1850, 1860 *and* 1870, *according to the Census Reports for those years.*

States and Territories.	1850.		1860.		1870.	
	Square miles.	Persons to a square mile.	Square miles.	Persons to a square mile.	Square miles.	Persons to a square mile.
Indiana	33,809	29.24	Unchanged.	39.94	Unchanged.	49.71
Iowa	55,045	3.49	"	12.26	"	21.69
Kansas	.....	.....	.....	.....	81,318	4.48
Kentucky	37,680	26.07	Unchanged.	30.94	Unchanged.	35.33
Louisiana	41,346	12.52	"	17.12	"	17.58
Maine	35,000	16.66	"	17.95	"	17.91
Maryland	11,124	52.41	"	61.76	"	70.20
Massachusetts	7,800	127.50	"	157.83	"	186.84
Michigan	56,451	7.04	"	13.27	"	20.97
Minnesota	.....	.....	83,531	2.10	"	5.26
Mississippi	47,156	12.86	Unchanged.	16.78	"	17.56
Missouri	65,350	10.44	"	18.09	"	26.34
Nebraska	.....	.....	.....	.....	75,995	1.62
Nevada	.....	.....	.....	.....	104,125	0.41
New Hampshire	9,280	34.26	Unchanged.	35.14	Unchanged.	34.30
New Jersey	8,320	58.84	"	80.77	"	108.91
New York	47,000	65.90	"	82.57	"	93.25
North Carolina	50,704	17.14	"	19.58	"	21.13
Ohio	39,964	49.55	"	58.54	"	66.69
Oregon	.....	.....	95,274	0.55	"	0.95
Pennsylvania	46,000	50.26	Unchanged.	63.18	"	76.56
Rhode Island	1,306	112.97	"	133.71	"	166.43
South Carolina	34,000	19.66	"	20.70	"	20.75
Tennessee	45,600	21.99	"	24.34	"	27.60
Texas	274,356	0.77	"	2.20	"	2.98
Vermont	10,212	30.76	"	30.86	"	32.37
Virginia	61,348	23.17	"	26.02	38,348	31.95
West Virginia	.....	.....	.....	.....	23,000	19.22
Wisconsin	53,924	5.66	Unchanged.	14.39	Unchanged.	19.56
The Territories	1,436,735	0.09	1,303,465	0.20	1,619,417	0.27
Alaska (unorganized)	.....	.....	.....	.....	577,390	.....
Arizona	.....	.....	.....	.....	113,916	0.08
Colorado	.....	.....	.....	.....	104,500	0.38
Dakota	.....	.....	.....	.....	150,932	0.09
District of Columbia.	64	807.61	Unchanged.	1173.13	Unchanged.	2057.81
Idaho	.....	.....	.....	.....	86,294	0.17
Indian (Country)	195,274	.....	68,991	.....	Unchanged.	.....
Kansas	.....	.....	126,283	0.85	.....	.....
Minnesota	165,491	0.04	81,960	.....	.....	.....
Montana	.....	.....	.....	.....	143,776	0.14
Nebraska	351,358	.....	Unchanged.	0.08	.....	.....
New Mexico	215,807	0.29	261,342	0.36	121,201	0.76
Oregon	288,345	0.05	.....	.....	.....	.....
Utah	220,196	0.05	Unchanged.	0.18	84,476	1.03
Washington	.....	.....	193,071	0.06	69,994	0.34
Wyoming	.....	.....	.....	.....	97,883	0.09

TABLE IX.

Number of Families and of Persons to a Family in the United States and in the several States and Territories thereof in 1850, 1860 *and* 1870, *according to the Census Reports for those years.*

States and Territories.	1850.		1860.		1870.	
	Number of families.	Persons to a family.	Number of families.	Persons to a family.	Number of families.	Persons to a family.
The United States.....	3,598,240	5.56	5,210,934	5.28	7,579,363	5.09
The States.....	3,570,683	5.56	5,147,650	5.28	7,481,607	5.09
Alabama.....	73,786	5.81	96,603	5.48	202,704	4.92
Arkansas.....	28,461	5.72	57,244	5.67	96,135	5.04
California	24,567	3.77	98,767	3.85	128,752	4.35
Connecticut.	73,448	5.05	94,831	4.85	114,981	4.67
Delaware.....	15,439	5.78	18,966	5.82	22,900	5.46
Florida.....	9,107	5.29	15,090	5.21	39,394	4.77
Georgia.....	91,666	5.72	109,919	5.41	237,850	4.98
Illinois.....	149,153	5.71	315,539	5.43	474,533	5.35
Indiana.....	171,564	5.76	248,664	5.43	320,160	5.25
Iowa	33,517	5.73	124,098	5.44	222,430	5.37
Kansas	.....	.....	21,912	4.89	72,493	5.03
Kentucky	132,920	5.80	166,321	5.59	232,797	5.67
Louisiana	54,112	5.04	74,725	5.04	158,099	4.60
Maine	103,333	5.64	120,863	5.20	131,017	4.78
Maryland	87,384	5.64	110,278	5.44	140,078	5.57
Massachusetts.....	192,675	5.16	251,287	4.90	305,534	4.77
Michigan.....	72,611	5.48	144,761	5.17	241,006	4.91
Minnesota.....	.....	.....	37,319	4.61	82,471	5.33
Mississippi.....	52,107	5.69	63,015	5.63	166,828	4.96
Missouri.....	100,890	5.89	192,073	5.56	316,917	5.43
Nebraska.....	.....	.....	.....	.....	25,075	4.91
Nevada	.....	.....	.....	.....	9,880	4.30
New Hampshire.....	62,287	5.15	69,018	4.72	72,144	4.41
New Jersey.....	89,080	5.50	130,348	5.16	183,043	4.95
New York.....	566,869	5.46	758,420	5.12	892,772	4.88
North Carolina.....	105,451	5.50	125,090	5.29	205,970	5.20
Ohio.....	348,514	5.68	434,134	5.39	521,981	5.11
Oregon.....	.....	.....	11,063	4.74	18,504	4.91
Pennsylvania.....	408,497	5.66	524,558	5.54	675,408	5.21
Rhode Island.....	28,216	5.23	35,209	4.96	46,133	4.71
South Carolina.....	52,937	5.36	58,642	5.14	151,105	4.67
Tennessee.....	130,004	5.87	149,335	5.59	231,365	5.44
Texas.....	28,377	5.44	76,781	5.49	154,483	5.30
Vermont.....	58,573	5.36	63,781	4.94	70,462	4.69
Virginia.....	167,530	5.67	201,523	5.49	231,574	5.29
West Virginia.....	.....	.....	.....	.....	78,474	5.63
Wisconsin.....	57,608	5.30	147,473	5.26	200,155	5.27
The Territories.....	27,557	4.39	63,284	4.30	97,756	4.48
Arizona.....	.....	.....	.....	.....	2,290	4.22
Colorado.....	.....	.....	10,045	3.41	9,358	4.26
Dakota.....	.....	.....	1,241	3.90	3,090	4.59

TABLE IX.—Continued.

Number of Families and of Persons to a Family in the United States and in the several States and Territories thereof in 1850, 1860 *and* 1870, *according to the Census Reports for those years.*

Territories.	1850.		1860.		1870.	
	Number of families.	Persons to a family.	Number of families.	Persons to a family.	Number of families.	Persons to a family.
District of Columbia.	8,343	5.75	12,888	5.58	25,276	5.21
Idaho	.....	.....	.....	.....	4,104	3.65
Minnesota	1,016	5.98	.....	.....	.....	.....
Montana	.....	.....	.....	.....	7,058	2.92
Nebraska	.....	.....	5,931	4.86	.....	.....
New Mexico	13,502	4.56	20,881	4.48	21,449	4.28
Oregon	2,734	5.60	.....	.....	.....	.....
Utah	2,322	4.90	9,500	4.96	17,210	5.04
Washington	.....	.....	2,798	4.14	5,673	4.22
Wyoming	.....	.....	.....	.....	2,248	4.00

TABLE X.

Number of Dwellings and of Persons to a Dwelling in the United States and in the several States and Territories thereof in 1850, 1860 *and* 1870, *according to the Census Reports for those years.*

States and Territories.	1850.		1860.		1870.	
	Number of dwellings.	Persons to a dwelling.	Number of dwellings.	Persons to a dwelling.	Number of dwellings.	Persons to a dwelling.
The United States	3,362,337	5.94	4,969,692	5.53	7,042,833	5.47
The States	3,335,269	5.95	4,912,437	5.54	6,941,603	5.49
Alabama	73,070	5.87	96,682	5.47	198,327	5.03
Arkansas	28,252	5.76	56,717	5.72	93,195	5.20
California	23,742	3.90	100,328	3.79	126,307	4.44
Connecticut	64,013	5.79	83,622	5.50	96,880	5.55
Delaware	15,290	5.84	19,288	5.72	22,577	5.54
Florida	9,022	5.34	14,132	5.57	41,047	4.57
Georgia	91,206	5.75	109,069	5.46	236,436	5.01
Illinois	146,544	5.81	304,742	5.62	464,155	5.47
Indiana	170,178	5.81	256,936	5.26	318,469	5.28
Iowa	32,962	5.83	131,663	5.13	219,846	5.44
Kansas	.....	.....	33,278	2.96	71,071	5.13
Kentucky	130,769	5.90	164,161	5.67	224,969	5.87
Louisiana	49,101	5.56	63,992	5.88	150,427	4.83
Maine	95,802	6.09	115,933	5.42	121,953	5.14
Maryland	81,708	6.03	106,137	5.65	129,620	6.02

TABLE X.—CONTINUED.

Number of Dwellings and of Persons to a Dwelling in the United States and in the several States and Territories thereof in 1850, 1860 *and* 1870, *according to the Census Reports for those years.*

States and Territories.	1850.		1860.		1870.	
	Number of dwellings.	Persons to a dwelling.	Number of dwellings.	Persons to a dwelling.	Number of dwellings.	Persons to a dwelling.
Massachusetts	152,835	6.51	205,319	6.00	236,473	6.16
Michigan	71,616	5.55	150,952	4.96	237,036	5.00
Minnesota	.....	.....	40,926	4.20	81,140	5.42
Mississippi	51,681	5.74	61,460	5.77	164,150	5.04
Missouri	96,849	6.14	181,069	5.89	292,769	5.87
Nebraska	.....	.....	.....	.....	25,144	4.89
Nevada	.....	.....	.....	.....	12,990	3.27
New Hampshire	57,339	5.55	65,968	4.94	67,046	4.75
New Jersey	81,064	6.04	116,353	5.78	155,936	5.81
New York	473,936	6.54	615,888	6.30	688,559	6.37
North Carolina	104,996	5.53	129,585	5.11	202,504	5.29
Ohio	336,098	5.89	425,672	5.50	495,667	5.38
Oregon	.....	.....	12,277	4.27	19,372	4.69
Pennsylvania	386,216	5.99	515,319	5.64	635,680	5.54
Rhode Island	22,379	6.59	27,056	6.45	34,828	6.24
South Carolina	52,642	5.39	58,220	5.18	143,485	4.92
Tennessee	129,419	5.90	147,947	5.64	224,816	5.60
Texas	27,988	5.52	77,428	5.45	141,685	5.78
Vermont	56,421	5.57	62,977	5.00	66,145	5.00
Virginia	165,815	5.72	207,305	5.33	224,947	5.45
West Virginia	.....	.....	.....	.....	78,854	5.61
Wisconsin	56,316	5.42	154,036	5.04	197,098	5.35
The Territories	27,068	4.46	57,255	5.10	101,230	4.37
Arizona	.....	.....	.....	.....	2,822	3.42
Colorado	.....	.....	.....	.....	10,009	3.98
Dakota	.....	.....	1,361	3.55	3,231	4.39
District of Columbia	7,917	6.06	12,338	5.83	23,308	5.65
Idaho	.....	.....	.....	.....	.....	.....
Minnesota	1,002	6.06	.....	.....	.....	.....
Montana	.....	.....	.....	.....	9,450	2.18
Nebraska	.....	.....	7,811	3.69	.....	.....
New Mexico	13,453	4.57	21,945	4.26	21,053	4.36
Oregon	2,374	5.60	.....	.....	.....	.....
Utah	2,322	4.90	10,763	3.75	18,290	4.75
Washington	.....	.....	3,037	3.82	6,066	3.95
Wyoming	.....	.....	.....	.....	2,379	3.83

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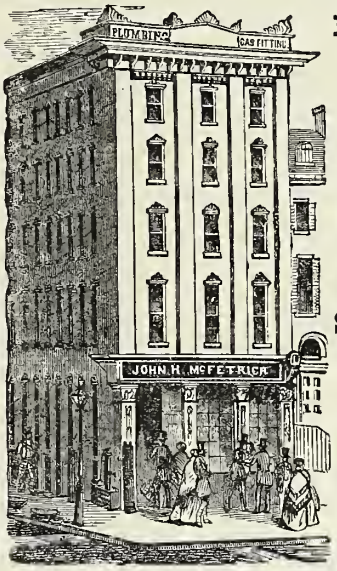
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